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THE UNIVERSITY OF CHICAGO DINNER

The annual University of Chicago Dinner in connection with the meeting of the Department of Superintendence of the National Education Association will be held at the Hotel Statler in Detroit, Michigan, at six o'clock on the evening of Wednesday, February 25, 1931.

Tickets, at the rate of \$2.50 each, may be secured from Dean W. S. Gray, School of Education, University of Chicago.

FACING A PERSISTENT OBSTACLE IN LABORATORY SCHOOLS

The annual report of the Dean of Teachers College, Columbia University, for the year ended June 30, 1930, is given over largely to a consideration of secondary education. Specifically it deals with the problem of the "college schools"—that is, the schools operating under the auspices of Teachers College—and generically with the problem of "the American secondary school." The two problems are discussed in their relations to each other.

Dean Russell's discussion of the first of these problems centers about the study and appraisal of the college schools by a special committee appointed for the purpose—a committee composed of President James R. Angell, of Yale University; President Ernest H.

Wilkins, of Oberlin College; and President Walter A. Jessup, of the University of Iowa. Dean Russell summarizes the report and quotes from it in part as follows:

The Committee finds the Horace Mann School for Boys to be a conventional college-preparatory school of the country day school type. It has exceptional success in preparing its pupils to pass the college-entrance examinations. Its graduates do well in college. There is a splendid, though conventional, school spirit. The high-school departments of the Lincoln and the Horace Mann Girls' Schools are equally successful in college preparation, and their graduates on the whole have slightly better records in college than the pupils from the Horace Mann School for Boys. There are few significant differences among the three schools in the upper years, except for the absence of classical languages in the Lincoln School. Even here Latin is sometimes studied outside of school hours, through tutors provided at home. "The Lincoln Elementary School is distinctly progressive and experimental, the Horace Mann Elementary School is less so, but still definitely progressive. The three high schools are much more conventional and traditional—this under pressure from the colleges and from the parents who are college graduates and desire their children to prepare unhampered for college entrance."

The Appraisal Committee reports that "the three schools have exercised a wide and profound influence on the schools of the country. The elementary schools are especially influential. This influence is derived partly from textbook production, and partly from the devising of new procedures which have been later adopted, either as a result of visitation or as a result of the training of teachers at Teachers College, who later accept school positions. The unique nature of the Lincoln School text and curriculum material has been especially significant. The summer demonstration schools of Teachers College conducted in the Horace Mann School building have also been extremely influential. The visiting by representatives of normal schools and teachers colleges, as well as by distinguished educators from foreign countries, is a striking indication of the position held by the schools."

The obstacle presented by the requirements of the colleges, which is mentioned in this report, is referred to in a recent issue of the *New Republic* as "the deadlock in progressive education." An editorial under this caption deplores the plight of a "progressive" school in New York City brought on by the pressure of the traditional requirements and then draws on Dean Russell's report as corroboration of the point of view taken in the editorial. The editorial states:

While there is some improvement in the college-entrance requirements, particularly in the lessened insistence on dead languages, and permitting students to matriculate after passing a special group of inclusive examinations, progress

remains dishearteningly slow. . . . The colleges, which are so notoriously out of touch with the life of today in many respects, are particularly so in regard to education.

The report of the committee of appraisal stresses the high desirability of integrating the schools with Teachers College and of effecting a differentiation of function of the schools. The need of further integration is not peculiar to the situation in Teachers College; it is probably common to all laboratory schools operating under the auspices of schools of education. The differentiation advocated by the committee is that the Horace Mann Schools should "demonstrate sound educational theory" and that the Lincoln School should prosecute educational experimentation and investigation. The report points out:

This is possible in the elementary school under present conditions, but there cannot be much experimentation and investigation in a high school where parents, pupils, and teachers alike have their attention fixed upon College Board examinations which become more difficult year by year. The Lincoln High School cannot become the experiment station which it should be unless the college-entrance problem be surmounted.

It is the reference to "sound educational theory" by the committee of appraisal that prompts Dean Russell to bring into his report consideration of the problem of the American secondary school—the second of the problems relating to secondary education with which he deals. He indicates that there is just now a great deal of interest in what constitutes sound educational theory for the high school. He cites evidences of this interest, such as the appropriation by Congress of \$225,000 for the National Survey of Secondary Education, the issues raised by Sir Michael Sadler in the Sachs Lectures delivered at Teachers College almost a year ago, and the points of view concerning the function of American secondary education entertained by certain members of the staff of Teachers College, namely, Professors Briggs, Monroe, and Counts. The discussion is accompanied by an ingenious tabulation of "problems of the coming industrial age and their educational implications" and statistical proof of the recent rapid progress in this country toward a twelve-year common school. The report concludes by proposing a promising means of bringing the consideration of the problems of the college schools and of the American secondary school to common

ground by organizing a conference of representatives from the schools and from Teachers College, from the faculties, and from the patrons "to consider the conflicting criticisms and plans for reorganization and readjustment."

From this conference would come not only a crystallization of opinion but plans for the future. The Horace Mann Schools could proceed to demonstrate that which was agreed upon as sound. The Lincoln School (if it were liberated from college-entrance requirements) could undertake to investigate the most pressing problems concerning which there is doubt. The Child Development Institute, the Institute of Educational Research, the Institute of School Experimentation, and the Schools of Education and Practical Arts could co-operate. Then in our microcosm we should have anticipated the movement for reform in American education that is certain to come, and Teachers College again would serve its function of helping to improve education in all its forms and stages, public and private, in the United States and in the other countries of the world.

**ADVISORY COMMITTEES FOR THE UNITED STATES
OFFICE OF EDUCATION**

Announcements have recently been made of the appointment by Secretary of the Interior Ray Lyman Wilbur of two advisory committees for certain portions of the work being carried on in the United States Office of Education. The first of these to be announced was the Advisory Committee of the National Survey of Secondary Education. This is a committee of fifty eminent persons interested in education but not professionally engaged in educational work. The appointment of the committee follows a plan discussed by the expert consultants on the survey to bring to the project, in addition to the knowledge of the educational specialist, as represented in the professional advisers and the survey staff proper, the benefit of intelligent lay opinion and co-operation. The membership of this committee of laymen is drawn from all states of the Union and is representative of a wide variety of interests and vocations. Limitations of space will not permit reporting here the list of the members and their occupations and places of residence, but the assertion is easily warranted that their names would be recognized as those of men and women who are in a position to appreciate the significance of education and who can be helpful in connection with a project such as a national inquiry concerning schools.

The function of this committee is to make recommendations to

the survey staff and to review the findings of the survey. Opportunity will be given the members of the committee to advise upon important procedures while these are still provisional and to give their reactions to the report while it is in tentative form. Thus, at the close of the survey there will be in every state some prominent and able person, not professionally engaged in education, whose acquaintance with the findings will make it possible for him to interpret the survey to the taxpayer and the general public.

The second of these advisory committees recently appointed by Secretary Wilbur is a National Advisory Committee on the Education of Negroes. The general purpose of this committee of twenty members will be to give advice and counsel with regard to policies to be pursued in connection with certain major problems and questions which will arise from time to time; and it is the hope that the members will serve as contact representatives in the various geographical centers in interpreting the needs of the race to the Office of Education and in turn the plans and program of the Office to the race. In addition, Ambrose Caliver, specialist in the education of negroes, will secure from members of the committee expert advice and detailed suggestions on some of the more technical problems relating to the education of negroes.

The position of specialist in the education of negroes is itself a new one in the Office of Education and, therefore, represents an extension of attention in the Office to the problems in the education of that part of our population. The range of activities of Dr. Caliver will be as wide as the educational problems involved, but during the next few years he will undoubtedly emphasize, to some extent, investigations related to the two national surveys now under way in the Office of Education—the surveys of secondary education and of teachers' education. This means that among his early activities will be the investigation of secondary schools for negroes and of teachers in schools for negroes. In this work he will consult with the National Advisory Committee on the Education of Negroes.

AN ORGANIZATION FOR EDUCATIONAL RESEARCH IN SCOTLAND

The Scottish Council for Research in Education is now in the third year of its existence and operation. The council is composed of

thirty-two members nominated by a number of bodies concerned with schools and education in Scotland, such as the Association of Education Authorities, the Association of Directors of Education, the teacher-training centers and colleges, the universities of Scotland, the Scottish Branch of the British Psychological Society, and the Association of School Medical Officers of Scotland. The aims of the council are (1) to initiate and control special investigations, (2) to receive suggestions for research, (3) to allocate problems to suitable investigators, (4) wholly or partly to finance approved investigations, and (5) to authorize the publication of results and recommendations, and to bear, in whole or in part, the cost of such publication. The council meets at least twice each year. There are two standing committees: an executive committee, which carries on the general activities of the council, and a finance committee. The funds of the council are derived from two sources: grants made by any of the bodies represented and contributions from individuals or groups.

Investigations so far made have had to be carried on in the spare time of teachers and administrative officers; but even in this early stage of its existence the council has a sizable program of research under way, many of the projects being on the level we ordinarily designate as secondary. One of these relates to the establishment of standards for the "qualifying examinations." To aid in this standardized "attainment," a committee of the council is devising tests in arithmetic (mechanical operations and reasoning) and English (reading, composition, and spelling).

The above tests will enable the educational attainments of pupils at about the age of transition to postprimary courses to be accurately assessed. The committee has also decided to explore methods of determining types of ability, which will enable pupils to be directed into the appropriate course at the qualifying stage or at the "clean cut," so that the postprimary education of the individual pupil may be the most appropriate, and that the later vocational guidance may not be prejudiced by the adoption of a course at school unsuited to the capacity of the pupil.

In 1929 a committee was appointed to undertake an investigation into the curriculum appropriate to pupils of ages twelve to fifteen—with us, the junior high school age. This work was undertaken reluctantly because it was realized that "to execute this task in a scientific way deserving the title of 'research'" was beyond the

resources available. However, the urgency of the problem prompted the following procedure and activity.

The committee decided that in addition to the preparation of any courses or schemes of work, and preliminary to it, an inquiry should be instituted to determine what the various educational subjects could contribute to the education of the pupils of the age in question, and to this end constituted a series of Panels of experts on the various subjects and of those conversant with school conditions. To guide these Panels in their deliberations and to facilitate the co-ordination of their findings, the recently published literature on the problem was reviewed, and a preamble was prepared and circulated to the members of all the Panels. Over sixty meetings of the Panels have been called by the Secretary to the Research Council, and many others called privately by the Conveners. Over sixty drafts of reports have been manifolded and distributed to the various Panels. . . .

A small editorial and revising subcommittee was later appointed to deal, in co-operation with the Conveners and representative members of the respective Panels, with the reports of the Panels, and arrange them for publication. It was also decided that a General Introduction, setting forth the principles determining the construction of the curriculum, should be prepared.

There are projects also involving a follow-up and comparison of the later progress of pupils in various types of secondary schools with the results of mental tests given during attendance in these schools and an investigation into the effect of environment on children transferred from a slum area under a rehousing scheme.

The emergence and operation in Scotland of an organization of this sort is a significant phenomenon on its own account, without consideration of its relation to activities and needs within our own borders. Interest is added, however, by the fact that workers in the schools in still another part of the world have launched a program of educational research and that the lines of investigation are not unlike those we have been following. The progress represented in such an organization and program toward co-ordination of research on a national scale is also significant. We might well make more progress in that direction.

HIGH-SCHOOL CORRESPONDENCE COURSES IN BRITISH COLUMBIA

The correspondence-study plan initiated some time ago for the "outback" areas of Australia is being extended to other far-flung provinces of the British Empire. The Department of Education of British Columbia for more than a year has been offering correspond-

ence courses in high-school subjects. During the first year applications were received from approximately six hundred students, many of whom resided in remote parts of the province. More than a fourth of those who registered were over eighteen years of age. In addition to courses in the usual academic fields, work is offered in home economics and in commercial subjects.

Candidates for this instruction fall into some one of the following groups: (1) those wishing to complete "junior matriculation" in order to enter the university or other institution of higher learning; (2) those preparing to enter normal school; (3) those wishing to prepare for clerical, stenographic, or commercial positions, or for the provincial or dominion civil service; and (4) those aiming at their own personal improvement and general cultural development.

In considering those for whom this service is chiefly intended, one thinks first of persons remote from opportunities for high-school education in residence. This primary service is especially appropriate in sparsely populated regions and on the frontier. In harmony with this understanding is the provision in British Columbia that persons may register as correspondence students who live "more than three miles from the nearest high or superior school, or from such school transportation service as may be provided by the local school authorities." The service is, however, extended also to those living within the three-mile distance (1) who are prevented from attending the local high or superior school on account of illness or physical disability, (2) who are so occupied or situated as to be unable to take advantage of local day- or night-school opportunities, or (3) who are unable to secure in the local high or superior school the particular course desired. A student in the last category may arrange to attend the local high school and take by correspondence only such subjects as are not or cannot be taught in the local school. This feature of the plan operates as an offset to the almost inevitable limitations of the curriculum offering in small high schools.

The several features of the plan should combine to popularize further the opportunities of secondary education. The increased popularization would take place in areas where the proportions of youth receiving the benefits of education on this level are known to be relatively low. Introduction of the plan is deserving of con-

sideration in all our states having sparsely settled areas and small communities—and few, if any, states are without such areas and communities.

LISTING OPPORTUNITIES FOR VOCATIONAL TRAINING

The Vocational Service for Juniors in New York City has recently issued a revision of *Opportunities for Vocational Training in New York City*. The publication is a directory of the opportunities for vocational training afforded by the various educational institutions in New York City. Improvement over earlier editions has been achieved by arranging this information regarding the schools under the subjects taught rather than, as formerly, by schools in alphabetical arrangement. The index of subjects taught and the directory proper are preceded by a statement of conditions under which minors may work.

The information in a publication of this nature is, to be sure, almost strictly local in significance. The directory is mentioned here because of the desirability of making analogous information available in other cities. This information will not be as extended for other centers of population, but it can be fully as valuable for the youth in need of guidance.

THE FUTURE OF CHURCH COLLEGES

In the December issue of *Current History* Andrew D. Harmon, formerly president of Transylvania College, Lexington, Kentucky, in an article entitled "The Passing of the Church College," writes discouragingly of the future of collegiate education under denominational auspices. The following excerpts from the article are quoted by special permission of *Current History*, the monthly publication of the New York Times Company. Readers having to do with secondary schools will probably note especially the references to the junior-college movement.

In the judgment of an increasing number of representative educators and university executives, church colleges face a precarious future.

By church college is meant that traditional, fixed institution of higher education under the support and direction of denominational Christianity. It carries a student body ranging usually from two hundred to four hundred and builds its program of offerings around the college of liberal arts, with its strongest major in professional education, and with a traditional and some-

what indifferent emphasis upon religion. There are about four hundred colleges of this type in the United States at the present time.

Until the seventies the church college furnished almost exclusively the training for the ministry, law, medicine, and for that class of people who live lives of "genteel" citizenship. It can challenge with satisfaction the tax-supported institutions by pointing out the fact that congressmen, senators, presidents, supreme-court justices, diplomats, men and women of letters, and men and women of professional distinction have come largely by the way of its halls.

Today, however, there are definite trends indicating the removal of the historic church college from the field of education. Most important among these are the junior-college movement and the now established curriculums of the standard four-year college. . . .

The curriculum of the church college is now determined by the dominant occupational and professional pattern of the tax-supported institutions. It is divided into two distinct parts, the first two years of general culture and the last two years of majors in the field of the student's life-interest. Whatever profession or calling a student plans to enter, he does his broad preliminary work that leads up to his highly technical training in the last two years of his college course. These two divisions of the regular four-year college course are so distinctly organized into units that they are now called junior and senior colleges, and some institutions grant certificates at the end of the junior and diplomas at the end of the senior college.

This arrangement carries the student direct from high school and junior college into the institution that tunes his total college work into his ultimate professional majors. The mind of a real student tends to think in complete patterns. It is unnatural and illogical for a student bent upon a profession to divide his educational preparation between a church college that can offer only part of his training, and that too often uncorrelated, and a state university that offers the entirety of his training in a unified whole. . . .

The forces that terminate institutions have a long drift, but they move inexorably. Usually the change is at hand before society is aware. The passing of the church college is now taking place and most of its devotees are looking upon the transition; some are even players in the drama and do not recognize it. They are moving toward their end along four lines:

1. Those colleges that are well endowed and have an unoccupied field have for a time a grip on life. It cannot, however, be regarded as permanent.
2. Church colleges situated in cities where there are no state colleges are moving rapidly toward municipal institutions. The city either takes them over and supports them from taxes, or the board is modified from a distinct church board to a private independent board that represents the various religious, economic, and social groups of the supporting municipality. This type has greatly increased in number in recent years.
3. Other church colleges are becoming junior colleges. Their field has been encroached upon by the state, and their resources are too limited to survive

competition. They change the type of their work from a four-year standard college to a junior college, which gives them a budget their resources can meet.

4. The colleges that have not already assembled sizable endowments, and do not have a natural territory from which to draw students and financial support, are being forced to the wall.

The concluding portions of the article purport to summarize the history of the church in relation to education in this country. According to this summary, the church has been successively dispossessed by the state of control of elementary and of secondary education. The last sentence reads, "The processes by which the state has dispossessed the church at each step in the development of education are still operative, and unless these processes are met with some counterforce not now apparent the passing of the church college is a mere contest against time."

Sweeping generalizations and prophecies of this sort are beset by numerous hazards. Important exceptions to these generalizations, in the nature of counteracting influences, may be illustrated. One of these is the growth in numbers and strength of colleges of certain denominations, notably those under Roman Catholic auspices. Another is the abating denominationalism in certain colleges formerly emphatic in their church allegiance and their consequent gain in student body, resources, and prestige. Also, it is difficult to estimate at this stage the influence of the Liberal Arts College Movement, which was referred to in this section of the January *School Review* and there described as frankly promotional. However, most of the forces and changes mentioned in the quotation are doubtless discernible and will affect profoundly the types of secondary and higher institutions that will be dominant in the next generation.

REORGANIZATION IN THE UNIVERSITY OF CHICAGO

During recent weeks there has been much discussion by those interested in education of the plan of reorganization announced in November by the University of Chicago. Much of the discussion, whether favorable or noncommittal, appears to have been based on only partial reports or descriptions of the plan. Because of their interest in reorganization in higher education that is certain to affect the lower schools, readers of the *School Review* are entitled to a more nearly adequate description of the plan than has so far been gen-

erally available. To this end certain excerpts are given from an article dealing with the plan prepared by John P. Howe, assistant director of public relations of the University, which was published in the December number of the *University of Chicago Magazine*. These excerpts include reference to most of the features of the plan. It is to be regretted that the drastic reduction in the original article necessary for present purposes fails to do justice to—in fact, does considerable violence to—what in full is an intelligible and illuminating statement of the plan.

To those familiar with the trend of thought among educators during the past three decades the "news" of the drastic reorganization now in its initial stages at the University is that Chicago becomes the first major institution to take decisive action. To those at Chicago who have followed the reports of committees working successively under Presidents Burton, Mason, and Hutchins, and who have watched the gradual introduction of survey courses, honors courses, and co-operative research, the news is that the University is now ready to undertake on a sweeping scale reforms which it has been trying on an experimental scale.

Not unreasonable is the fundamental assumption upon which the new educational set-up is based: that the American student—and particularly the student at Chicago—is interested in his own education. And that education which involves real initiative on the part of the student is more lasting and genuine than education which involves only the quarter-to-quarter fulfilment of imposed tasks. This is the first principle, and the rock upon which the new educational life of the University will be built.

There are other ideas inherent in the plan One is that the student should have a wide acquaintance in all the great fields of human interest before he devotes himself intensively to a special field. Another is that the student's status in the University should change not at the moment he receives the Bachelor's degree but at the time he is ready to move from general "cultural" studies to more advanced work in some great field. A third guiding principle is that the passage of time and the accumulation of grade-points and course-credits is no measure of accomplishment; and that no administrative obstacles to the progress of the student, in the form of regimented week-to-week requirements, should bind the exceptional student to the pace of the average student, or the average student to the pace of the inferior student.

A fourth basic principle, somewhat newer, and not closely related to the other three, is this: that scholarly and scientific investigations have in the last half-century progressed so far toward extreme specialization that some effort must be made to co-ordinate such work, especially in so far as each segment of it bears on great problems common to the general field of the worker. From the point of view of the more advanced student this means that greater emphasis will

probably be put upon familiarity with a field, rather than upon some phase of a field. From the point of view of the scholar and scientist it means that a co-ordinating agency in each great field is set up to facilitate co-operative work. . . .

The plan of reorganization can best be understood in terms of what is accomplished fact and what is projected. The Board of Trustees, on November 13, formally approved a divisional organization of the University which the Senate (consisting of all the full professors) had approved unanimously on October 22. The statutes of the University were amended in harmony therewith. The divisional organization provides the framework upon which the entire reorganization will proceed. It supersedes and removes from the academic scene the junior college, the senior college, and the graduate schools of arts, literature, and of science.

Briefly, the new structure of the University is this: (1) the College, (2) four divisions in arts and sciences, (3) the professional schools.

The College will be a comparatively new entity, corresponding roughly—but only roughly—to the idea of a junior college, and will be separate from the four divisions, though dovetailing somewhat in the work of the divisions. The various departments of the University have been assigned, tentatively, to the four divisions in arts, as follows:

Biological Sciences Division.—Botany, Zoölogy, Anatomy, Physiology, Physiological Chemistry, Hygiene and Bacteriology, Pathology, Physical Culture, and the South Side Clinical departments (the Clinics Group).

Physical Sciences Division.—Mathematics, Astronomy, Physics, Chemistry, Geology, and Military Science.

Social Sciences Division.—Psychology, Education, Economics, Political Science, History, Sociology, Anthropology, Home Economics, and Geography.

Humanities Division.—Philosophy, Art, Comparative Religion, Oriental Languages, New Testament, Comparative Philology, Greek, Latin, Romance Languages, Germanics, and English. . . .

In each division the dean is the responsible head. All budget recommendations, including appointments, promotions, advances in salary, and provision for supplies and expenses will be made by the departments to the appropriate dean. . . .

The implications of the divisional reorganization are far deeper than mere budgetary juggling. The "co-operation in research" phase is of the first importance. With emphasis placed upon the division and responsibility placed in the hands of the divisional dean, work on great co-operative projects should be encouraged markedly without sacrifice to individual specialization. Some of these projects will undoubtedly extend across divisional as well as departmental lines—such as the projected study of the growing child, which involves eleven departments—but the divisional arrangement is certainly superior in this respect to the strict departmental set-up. The University has for several years been engaged in this interdepartmental work. . . .

Still more important is the intention to "open the way to experiments in general higher education." It is at this point that the most radical changes are expected, and at which the public attention has been largely focused. It is at this point also that the greatest work is yet to be done.

It would perhaps be simpler to indicate the path of a hypothetical student through the new University—indicating that which is definite and that which is still to be decided—than it would be to itemize the facts of the program.

The student enters the College of the University from high school (or possibly with some advanced standing) in much the same way as he does now. The College is the seat of general "cultural" teaching, a gap-bridging period between high school and the divisions of the University proper. The purpose of the College is to make him familiar with the great fields of knowledge, to whet the natural intellectual interests with which he comes to the University, to aid him in choosing his especial field of interest by showing him the complete picture. . . .

The actual work in the College will probably require the attention of the average student for two years. Its course of study will be extremely flexible, but will probably center upon four major survey-lecture courses, one in each of the four divisions of learning, aimed to cover a two-year stretch. The survey-lectures will be given before large groups by teachers picked for their ability to stimulate interest and for their knowledge of the field. Fields, rather than courses, will be emphasized. . . .

Within the College our hypothetical student will thus find all the materials of a general education—lectures, library, advice, the encouragement of his particular interests, the companionship of his fellows at least to the extent that the new south-of-the-Midway dormitories will center the informal life of the College.

Beyond these factors his progress will be largely in his own hands. No emphasis will be placed upon classroom attendance, upon current examinations, or upon incidental written papers. It is probable that such devices will be used, but their purpose will be merely that of "stock-taking," to keep both the student and the University informed as to their respective progress, and possibly to serve as an index of athletic eligibility or of transfer credit.

This, then, is the revolutionary angle of the reorganization. In its examination of factors liable to hamper the processes of education, the University has decided that grade-points, course-credits, and other artificial stimulants to study are hindrances rather than helps when their accumulation is merely a mechanical process, the instalment buying of a degree.

The new method will be nothing if not flexible. Students will come to the College, as they always have, with varied backgrounds of information, and varied ability, energy, and temperament. President Hutchins points out that a genius may pass through the College into a division in a few months. Some students may remain longer than two years. Others, interested only in general culture, or even in college life, as such, may choose to stay longer. . . .

The end of the College period for our hypothetical student will be marked by his successful meeting and passing of a comprehensive examination covering the four fields of knowledge. He may take the examination at any time he and his advisers feel that he is ready. And it is in these comprehensive examinations that one key to the success of the reorganization—so far as testing is valuable in education—will rest. . . .

Passing the examination will not mean for our student the direct attainment of the Bachelor's degree. Passing with a satisfactory degree of excellence will mean admission to one of the four upper divisions of the University and may eventually mean admission to one of the professional schools. Passing with a lower degree of excellence will probably mean either an honorable exit or more work in the College.

The four upper divisions will take over what is now the advanced work of the undergraduate college and the work of the graduate schools of arts, literature, and science, and will recommend the grants of all non-professional degrees from the baccalaureate to the doctorate. While it is probable that the present work of the upper divisions of the University will be less sharply affected by the reorganization plan, the basic principles of the plan will eventually obtain here also.

No critical emphasis will be placed upon time or credit requirements, upon grades or class attendance. Degrees will be granted upon the recommendation of an entire division, and not by a department. Comprehensive examinations, given by the faculty of the entire division, will provide the chief index of eligibility for any non-professional degree. . . .

The University's professional schools, including the Schools of Law, Divinity, Education, Commerce and Administration, Social Service Administration and Library Science, and the Oriental Institute, are not vitally affected by the reorganization, except in so far as part of their work is handled through non-professional departments. They may, however, adopt some of the contemplated reforms.

The University Clinics, through which the M.D. degree may be obtained, will adopt the reorganization plan. Its officers see in the new system a machinery for furthering the principles upon which the Clinics group is founded. . . . Research work in medicine, surgery, and related disciplines must be done at the University level, it is here believed, and in co-operation with all the biological sciences. The departments of the University Clinics, therefore, will come in under the Division of Biological Sciences. All degrees, including the M.D., will be granted upon the basis of comprehensive examinations framed by the division. One factor will modify the purpose of the University Clinics to recommend the award of the M.D. upon the demonstration of accomplishment rather than upon the basis of time served and courses taken: the Illinois state law requires that forty-five months must pass between the start of medical training and the award of the degree. . . .

There is of course this question, among others, concerning the entire reorganization: how long will it take? No one at the University can say definitely. The first steps have been taken. The University Senate has adopted the scheme, in principle, with enthusiasm. Committees are already hard at work. Details will be voluminous. It is probable that elements of the new plan will be introduced gradually, so far as that is possible. It is possible that the present organization and the new plan will overlap for a considerable time. It is almost certain that some details of the plan will be tried, discarded, revised. The newspapers have spoken of it as a "five-year plan." Vice-President Woodward has mentioned two years as the possible time when the principal features of the reorganization will be effective. The framework, upon which the plastic elements of the plan will rest, became effective November 17.

Another question is that of student life. Officers of the University are convinced that the reorganization will materially enrich the non-academic life of the University, partly by making the academic life more zestful. They see no reason that athletics and other extra-curriculum activities cannot have as real a life as they have had heretofore. Some modifying action will result, of course, in such traditional groups as the class organizations. Nothing which has a perennially active interest for students will be hampered. And the prospect of minor changes in the student way of life should certainly not impede the progress of so important an educational development.

The completion of the dormitories south of the Midway will provide the students of the College with a type of communal life which the University has never had before.

President Hutchins has emphasized the fact that the reorganized University will make no cruel or unusual demands upon the student. Rather its effect should be to make vivid those elements of his life which before have been deadening routine. The University believes that it has already in its student ranks an unusually high type of young man and woman. For these the University believes it will be able to provide a better life while they are here and a better education which will persist beyond its precincts.

THE EFFECTIVENESS OF REMEDIAL INSTRUCTION IN READING IN THE JUNIOR HIGH SCHOOL

JAMES M. McCALLISTER

Northern Normal and Industrial School, Aberdeen, South Dakota

Previous studies¹ have demonstrated the need for remedial instruction in reading among junior high school pupils. These studies show that many pupils are retarded in reading at the time of their entrance into the junior high school. Reports of the studies contain recommendations for remedial instruction as a means of improving the reading ability of such pupils. Three questions may be asked about the effectiveness of remedial work with retarded readers: (1) What is the character of the improvement during periods of remedial training? (2) Does improvement persist after training has been discontinued? (3) What influences, if any, limit the effectiveness of remedial instruction? The study reported in this article was undertaken with the view of contributing some information in answer to these three questions.

During the school years 1926-27, 1927-28, and 1928-29 the writer was engaged in remedial work in reading at the University High School of the University of Chicago. Among the remedial cases investigated were twenty-seven retarded readers. The case reports of these pupils contain records of their performance on standardized tests administered at the beginning and at the close of periods of remedial training. The reports also contain records of eye-movement photographs made before and after training. These data furnish evidence of the character of improvement during the training periods. Sixteen pupils who were studied in 1926-27 and 1927-28 were re-examined in 1927-28 and 1928-29, respectively, six to nine months after remedial training had been discontinued. The records obtained

¹ a) William S. Gray, "Case Studies of Reading Deficiencies in Junior High Schools," *Journal of Educational Research*, X (September, 1924), 132-40.

b) James M. McCallister, "Character and Causes of Retardation in Reading among Pupils of the Seventh and Eighth Grades," *Elementary School Journal*, XXXI (September, 1930), 35-43.

in the re-examinations furnish evidence of the permanency of improvement. Finally, the observations of the remedial worker recorded in the reports give evidence of certain influences which limited the effectiveness of remedial work in some cases. The data in this article were assembled by analyzing carefully these records.

CHARACTER OF THE REMEDIAL INSTRUCTION

Remedial instruction must of necessity be designed to aid in overcoming the deficiencies of individual pupils. In this study the deficiencies of no two pupils were found to be exactly alike. However, the deficiencies were sufficiently similar to justify classifying them into four groups for the purpose of describing the remedial instruction.

In Group A were twelve pupils who may be described as "decipherers." They were retarded in the sense that they could not interpret with facility materials of the level of difficulty ordinarily assigned to pupils of their grades. Their reading procedures resembled slow processes of deciphering. They usually interpreted passages accurately if they were given sufficient time and were allowed to reread. The remedial instruction given the members of this group was designed to develop power to read materials of higher levels of difficulty and placed emphasis on rapid but accurate silent reading.

In Group B were four pupils who can best be described as "slow learners." The school histories of these pupils revealed evidence of slow learning in all subjects. They not only read slowly but also were often so perplexed by the content of passages that they failed to secure satisfactory understandings. The remedial instruction given the members of this group was designed to accelerate growth in reading ability by providing wide experience in reading. Emphasis was placed on correct interpretation.

In Group C were five pupils who may be described as "slow, accurate readers." They interpreted reading materials effectively but read unusually slowly. Their deficiencies were chiefly the result of improper habits in the mechanics of reading, such as excessive vocalization or movement of the head while reading. The remedial instruction provided for these pupils consisted in practice in rapid silent reading and in the giving of suggestions designed to assist them in correcting improper habits.

In Group D were six pupils who may be described as "word-readers." They had formed habits of word-calling without directing attention effectively to content. These habits resulted in numerous inaccuracies and meager understanding. The rate of reading of these pupils was satisfactory. Four of the pupils might be described as rapid readers. The remedial instruction given the members of this group consisted in practice in reading accompanied by directions designed to direct attention more effectively to content.

The periods of remedial training varied in length in individual cases. The minimum periods were eight weeks in length; the maximum were twenty-four weeks. Each pupil usually read under the direction of the remedial worker for two fifty-minute periods a week.

IMPROVEMENT DURING PERIODS OF REMEDIAL TRAINING

The complex character of the reading process makes it difficult to define rigidly the character of improvement. Rate and comprehension are two phases which are readily recognizable but which are difficult to isolate for purposes of measurement. For example, rate of reading may vary in the reading of materials which differ in difficulty, and the degree of comprehension may be influenced by the rate at which the individual forces himself to read. Both rate and comprehension are influenced by facility of recognition. Tests and other measuring instruments emphasize various phases of reading ability, but, as a general rule, they purport to measure the reading process as a whole and not its definite phases. In view of these facts it was thought desirable to select for this study a variety of tests emphasizing different phases of reading. The following tests were used: the Thorndike-McCall Reading Scale, the Monroe Standardized Silent Reading Test, and an adaptation in mimeographed form of the Ancient-Ships test in Gray's Silent Reading Tests. These three tests provided two measures of comprehension and two measures of rate. The eye-movements of the pupils were also photographed in order that measures of improvement in facility of reading might be obtained.

Improvement in performance on standardized tests.—Records of the improvement of the pupils in comprehension as shown by their performance on the Monroe Standardized Silent Reading Test and on the Thorndike-McCall Reading Scale are given in Table I. Records

of improvement in rate of reading as measured by the Monroe test and by the Gray test are shown in Table II. The columns entitled

TABLE I

SCORES IN COMPREHENSION ON THE MONROE STANDARDIZED SILENT READING TEST AND THE THORNDIKE-MCCALL READING SCALE ACHIEVED IN THREE TESTINGS BY TWENTY-SEVEN PUPILS WHO RECEIVED REMEDIAL INSTRUCTION AND AMOUNT OF GAIN SHOWN IN EACH TEST

PUPIL	MONROE TEST					THORNDIKE-MCCALL SCALE				
	Test I	Test II	Gain	Test III	Permanent Gain	Test I	Test II	Gain	Test III	Permanent Gain
Group A:										
1.....	22	46	24	48	26	55	54	- 1	66	11
2.....	12	37	25	42	30	68	70	2	67	- 1
3.....	12	22	10	35	23	56	67	11	78	22
4.....	12	25	13	17	5	48	59	11	48	0
5.....	22	39	17	34	12	61	64	3	64	3
6.....	28	25	- 3	.....	.....	61	64	3	.....	.....
7.....	17	17	0	.....	.....	45	48	3	.....	.....
8.....	13	22	9	.....	.....	45	58	13	.....	.....
9.....	19	38	19	.....	.....	50	58	8	.....	.....
10.....	23	44	21	.....	.....	54	72	18	.....	.....
11.....	27	37	10	.....	.....	61	64	3	.....	.....
12.....	32	28	- 4	.....	.....	52	66	14	.....	.....
Group B:										
13.....	22	26	4	28	6	58	47	- 11	58	0
14.....	17	37	20	38	21	50	54	4	61	11
15.....	17	31	14	32	15	53	59	6	69	16
16.....	19	22	3	30	11	48	50	2	64	16
Group C:										
17.....	28	17	- 11	42	14	64	84	20	73	9
18.....	18	30	12	29	11	64	64	0	72	8
19.....	13	23	10	38	25	68	73	5	64	- 4
20.....	23	41	18	56	33	77	.....	70	- 7	.....
21.....	17	13	- 4	.....	.....	48	64	16	.....	.....
Group D:										
22.....	28	27	- 1	55	27	52	61	9	67	15
23.....	26	60	34	45	19	46	78	32	67	21
24.....	17	30	13	34	17	56	69	13	73	17
25.....	22	25	3	.....	.....	61	73	12	.....	.....
26.....	26	48	22	.....	.....	61	72	11	.....	.....
27.....	20	38	18	.....	.....	48	64	16	.....	.....

"Test I" contain the scores on the tests administered to the pupils before training was given, and those entitled "Test II" give the scores on tests administered at the close of the training period.

When the pupils in Group A were given training, emphasis was placed on improvement both in comprehension and in facility of

reading. An examination of the data in Tables I and II shows that, with a few exceptions, the pupils of this group made gains in rate

TABLE II

SCORES IN RATE ON THE GRAY SILENT READING TEST AND THE MONROE STANDARDIZED SILENT READING TEST ACHIEVED IN THREE TESTINGS BY TWENTY-SEVEN PUPILS WHO RECEIVED REMEDIAL INSTRUCTION AND AMOUNT OF GAIN SHOWN IN EACH TEST

PUPIL	GRAY TEST					MONROE TEST				
	Test I	Test II	Gain	Test III	Permanent Gain	Test I	Test II	Gain	Test III	Permanent Gain
Group A:										
1.....	3.85	5.43	1.58	3.66	-0.19	68	122	54	125	57
2.....	2.97	3.32	0.35	3.32	0.35	106	122	16	106	0
3.....	3.16	2.97	-0.19	2.89	-0.27	68	89	21	122	54
4.....	1.71	2.35	0.64	2.56	0.85	55	89	34	77	22
5.....	2.64	3.18	0.54	3.06	0.42	55	106	51	86	31
6.....	2.14	2.38	0.24	.....	.....	86	86	0	.....	.....
7.....	2.75	4.23	1.48	.....	.....	68	77	9	.....	.....
8.....	2.16	1.99	-0.17	.....	.....	66	68	2	.....	.....
9.....	2.82	3.81	0.99	.....	.....	77	122	45	.....	.....
10.....	2.93	4.50	1.57	.....	.....	68	134	66	.....	.....
11.....	3.22	4.47	1.25	.....	.....	109	134	25	.....	.....
12.....	2.92	3.64	0.72	.....	.....	77	77	0	.....	.....
Group B:										
13.....	2.26	4.45	2.19	2.78	0.52	55	77	22	77	22
14.....	2.34	3.78	1.44	3.34	1.00	86	122	36	122	36
15.....	2.53	3.61	1.08	3.42	0.89	55	89	34	100	45
16.....	2.71	3.75	1.04	3.64	0.93	109	122	13	134	25
Group C:										
17.....	2.89	3.65	0.76	3.52	0.63	77	89	12	122	45
18.....	2.65	5.13	2.48	3.06	0.41	55	106	51	77	22
19.....	2.84	3.87	1.03	4.08	1.24	68	106	38	106	38
20.....	2.90	3.50	0.60	4.23	1.33	77	126	49	145	68
21.....	3.05	2.61	-0.44	.....	.....	55	66	11	.....	.....
Group D:										
22.....	5.30	3.44	-1.86	4.49	-0.81	137	134	-3	134	-3
23.....	5.89	4.40	-1.49	4.52	-1.37	109	151	42	134	25
24.....	2.70	4.42	1.72	3.44	0.74	68	122	54	122	54
25.....	2.79	3.44	0.65	.....	.....	68	100	32	.....	.....
26.....	2.77	3.62	0.85	.....	.....	106	106	0	.....	.....
27.....	4.08	3.28	-0.80	.....	.....	89	89	0	.....	.....

and comprehension. The scores of Pupils 6 and 12 show losses in comprehension on the Monroe Standardized Silent Reading Test, those of Pupil 1 show a slight loss on the Thorndike-McCall Reading Scale, and the scores of Pupils 3 and 8 show losses in rate on the Gray test. Since Pupils 1, 3, and 8 made consistent gains

on most of the tests, their low scores on single tests were probably the result of errors of measurement rather than the result of lack of effectiveness in training. In fact, the observations of the progress of these pupils during periods of remedial instruction justify this conclusion. Pupils 6 and 8 encountered serious difficulties in the fundamental habits of recognition, such as accuracy, speed of recognition, and ability to cope with new words. These difficulties handicapped them throughout the training period and consumed much of the time devoted to remedial work. Their progress was much slower than that of other pupils. Pupil 6 was of a listless, dreamy disposition and was somewhat erratic in her reactions. Pupil 8 had a long history of slow progress in reading and was much discouraged. These conditions aid in accounting for the low scores on the tests. Pupil 12 appeared to make good progress during the periods of remedial instruction but was erratic in his performance under testing conditions. His erratic performance accounts for the inconsistency in his test scores.

The remedial training provided for Group B was designed to accelerate growth in both rate of reading and power of comprehension, but the chief emphasis was on accurate interpretation. With the exception of Pupil 13 the pupils of this group made gains on all tests. The improvement in rate of reading is relatively greater in all cases than improvement in comprehension. No explanation of the low score of Pupil 13 on the Thorndike-McCall scale was ascertained.

In Group C the emphasis in training was directed to the improvement of rate of reading. The data in Tables I and II indicate that Pupils 18, 19, and 20 made gains on all tests which involved rate of reading. The scores on the Thorndike-McCall Reading Scale, which is virtually an untimed test, reveal little improvement for these pupils. The scores for Pupil 17 show gains on all tests with the exception of the Monroe test in comprehension. No explanation of this low score was obtained. The work of Pupil 21 was never satisfactory. He exhibited little or no interest in the remedial instruction, and his performance on tests was erratic.

The chief purpose of the remedial work with the pupils of Group D was to enable them to direct attention more effectively to content. No emphasis was placed on rate of reading. The result of such

training should appear, for the most part, in gains on tests of comprehension. The data in Table I show that with the exception of Pupil 22 all pupils in this group improved their scores in comprehension. Pupil 22 was an impulsive child who did not recognize the value of careful, accurate work. Because of his impulsive disposition his performance on tests was always erratic. These facts account for the inconsistent results in his test scores. In general, the pupils of this group showed greater improvement in comprehension than in rate of reading. In fact, Pupils 22, 23, and 27, who were very rapid readers, decreased their rate of reading somewhat. Because of the character of the reading habits of these pupils the decrease in rate of reading appeared desirable.

TABLE III
STANDARD AVERAGE YEARLY GAINS SHOWN BY STANDARD SCORES
FOR GRADES VI AND VII AND FOR GRADES VII AND VIII
IN EACH READING TEST USED

Test	Grades VI-VII	Grades VII-VIII
Monroe Standardized Silent Reading Test:		
Rate.....	8.0	4.0
Comprehension.....	4.5	2.8
Thorndike-McCall Reading Scale.....	4.6	2.6
Gray Silent Reading Test.....	0.14	0.18

A further question may be raised with regard to the gains shown in Tables I and II: Are the gains large enough to be significant? This question may be answered by comparing the gains made by the pupils with the expected gains shown by published norms for the tests. The differences in the norms for Grades VI and VII and for Grades VII and VIII are shown in Table III. If the gains made by an individual, especially a retarded reader, equal or exceed the differences in the norms, the individual may be considered to have made significant progress. Comparisons of the gains shown in Tables I and II with the differences given in Table III indicate that Pupils 4, 5, 9, 10, 11, 14, 15, 19, 20, and 24 made significant improvement in both rate of reading and power of comprehension; Pupils 3, 8, 23, 26, and 27 made significant improvement in comprehension; and Pupils 1,

2, 7, 13, 16, 17, 18, and 25 made significant gains in rate. Pupils 6, 12, 21, and 22 failed to make significant progress.

Improvement in eye-movements.—Records of improvement shown by eye-movement photographs are given in Table IV. The columns marked "Photograph I" and "Photograph II" contain records of eye-movement photographs made before and after the periods of remedial instruction.

With the exception of Pupil 12 all pupils in Group A decreased the median number of fixations per line. With the exception of Pupils 5, 8, and 12 all pupils in this group decreased the median number of regressive movements per line. With the exception of Pupils 9 and 12 all pupils decreased the average duration of fixations. Most of the pupils in this group made consistent improvement in all phases of eye-movements. Pupil 12 is the only pupil whose records reveal no improvement whatever. As was previously explained, this pupil apparently made progress in the remedial instruction but was erratic in his performance on tests.

The chief improvement in the eye-movement records of the pupils in Group B appeared in the reduction of the median number of fixations per line. Pupils 13 and 16 also reduced the median number of regressions. No pupil in the group decreased the average duration of fixations. The records for Pupil 15 reveal less facility on the second photograph than on the first. During the making of the first photograph this pupil skimmed rapidly through the passage without giving much attention to meaning; before the making of the second photograph he was instructed to read carefully. Consequently, the results of the two photographs are really not comparable. The records for Pupil 14 were also affected by instruction. After the first photograph was made, he explained to the remedial worker that one of his instructors had told him how to read so that his eyes would move properly. He followed these instructions during the making of the photographs.

The records for the pupils of Group C show a variety of results. Pupil 17 reduced the average duration of fixations only. Pupil 18 reduced the median number of fixations and the median number of regressive movements. Pupils 19 and 20 made improvement in all phases of eye-movements. Pupil 21 made no improvement. As ex-

TABLE IV
IMPROVEMENT IN READING ABILITY SHOWN BY EYE-MOVEMENT PHOTOGRAPHS

Pupil	MEDIAN NUMBER OF REGRESSIONS PER LINE						AVERAGE DURATION OF FIXATIONS					
	Photo-graph I	Photo-graph II	Photo-graph III	Perma-nent Gain	Photo-graph I	Photo-graph II	Photo-graph III	Perma-nent Gain	Photo-graph I	Photo-graph II	Photo-graph III	Perma-nent Gain
Group A:												
1.	9.7	5.7	4.0	5.7	4.0	1.7	0.8	0.7	1.0	6.8	5.3	1.5
2.	9.7	6.5	3.2	6.0	3.7	2.3	1.0	1.3	0.5	1.8	7.6	0.5
3.	11.5	8.5	3.0	9.8	6.5	3.5	1.7	1.8	1.7	6.9	5.9	1.0
4.	8.8	6.8	2.0	5.5	3.3	2.5	1.8	0.7	0.5	2.0	8.2	0.5
5.	10.1	8.0	2.1	6.4	3.7	2.5	3.5	-1.0	0.8	1.7	6.5	1.7
6.	10.0	5.0	5.0	.....	5.0	2.0	.....	.....	.....	6.3	6.8	0.5
7.	14.0	7.1	6.9	.....	4.7	2.8	1.9	.....	.....	5.9	5.1	0.8
8.	12.5	12.2	0.3	.....	3.8	4.1	-0.3	.....	.....	7.5	6.3	1.2
9.	10.2	10.2	0.0	.....	2.7	2.2	0.5	.....	.....	7.3	6.7	0.6
10.	14.0	7.3	6.7	.....	4.0	2.4	1.6	.....	.....	5.7	7.1	-1.4
11.	14.5	9.2	5.3	.....	4.5	1.5	3.0	.....	.....	6.5	5.6	0.9
12.	12.	7.7	9.0	-1.3	.....	3.5	3.7	-0.2	.....	6.7	5.6	1.1
Group B:												
13.	10.3	7.3	3.0	7.5	2.8	2.0	1.0	0.8	1.2	6.3	7.4	-1.1
14.	8.2	7.4	0.8	6.5	1.7	0.8	0.8	0.0	0.5	0.3	5.3	0.0
15.	6.5	8.0	-1.5	7.0	-0.5	0.5	1.5	-1.0	1.7	-1.2	6.6	12.0
16.	9.6	7.2	2.4	7.0	2.6	1.1	0.9	0.2	1.0	0.1	5.6	5.8
Group C:												
17.	6.8	7.5	-0.7	.....	1.8	2.8	-1.0	.....	.....	7.0	5.7	1.3
18.	10.0	7.5	2.5	7.5	2.5	2.0	1.5	0.5	1.1	0.9	5.6	-1.4
19.	9.5	6.3	3.2	6.2	3.3	2.4	1.5	0.9	0.9	1.5	7.2	5.5
20.	9.5	7.5	2.0	7.8	1.7	2.3	1.7	0.6	0.8	1.5	7.1	6.1
21.	8.2	10.2	-2.0	.....	2.2	2.6	-0.4	.....	.....	6.2	7.2	-1.0
Group D:												
23.	6.1	5.8	0.3	8.0	-1.9	0.7	0.7	0.0	1.8	-1.1	5.6	6.0
24.	9.0	8.0	1.0	7.8	1.2	1.3	0.5	0.8	0.8	0.5	5.7	6.0
25.	11.5	7.0	4.5	.....	3.3	1.0	2.3	.....	.....	6.2	6.5	-0.3
26.	11.5	9.5	2.0	.....	3.5	2.5	1.0	0.5	.....	6.0	7.6	-1.0
27.	6.2	5.8	0.4	.....	1.8	1.0	0.8	.....	.....	7.1	7.4	-0.3

plained in the preceding section, the progress of Pupil 21 was unsatisfactory.

The records for the pupils of Group D also show a variety of results. Pupils 23 and 27 made only slight improvement. The training provided for these pupils had a tendency to improve comprehension at the expense of facility in reading. Consequently, little or no improvement in their eye-movement records was expected. Pupils 24, 25, and 26 reduced the median number of fixations and the median number of regressions but made little or no reduction in the average duration of fixations. No eye-movement photographs were made for Pupil 22.

The significance of the records in Table IV may be ascertained by comparing the gains made by these pupils with the records of

TABLE V
IMPROVEMENT IN EYE-MOVEMENT RECORDS FROM GRADES
VI TO VII AND FROM GRADES VII TO VIII*

	Grades VI-VII	Grades VII-VIII
Average number of fixations per line...	0.5	-0.4
Average number of regressions per line	0.1	0.5
Average duration of fixations.....	-0.1	-0.1

* Adapted from Guy Thomas Buswell, *Fundamental Reading Habits: A Study of Their Development*, p. 109. Supplementary Educational Monographs, No. 21. Chicago: Department of Education, University of Chicago, 1922.

development in eye-movements reported by Buswell. Table V gives differences in eye-movement records for Grades VI and VII and Grades VII and VIII computed from data in his study. The records in the table show only slight improvement in eye-movements during these years. As the reading selections used in this study were more difficult than those used by Buswell, improvement equivalent to that reported by him should be significant. Comparisons of the data in Tables IV and V show that eighteen pupils made significant reductions in the number of fixations per line, seventeen pupils made significant reductions in the number of regressions per line, and fourteen pupils made significant reductions in the duration of fixations. Only three pupils failed to show improvement. Since eye-movement records may be regarded as one of the most reliable indexes of improvement in facility in reading, it is evident that except in a few

cases the remedial instruction provided for these pupils improved their reading ability markedly.

PERMANENCY OF IMPROVEMENT

The data already presented refer to improvement during the periods of remedial training. A further question may be asked with regard to this improvement: Does improvement persist after the training has been discontinued? The columns in Tables I and II headed "Test III" contain the scores made on standardized tests given from six to nine months after the training had been discontinued. The columns headed "Permanent Gain" give the differences between the scores on these tests and those on the tests administered at the beginning of the training period. The differences may be regarded as measures of the persistence of improvement. Similarly, the columns in Table IV marked "Photograph III" and "Permanent Gain" indicate the persistence of improvement as revealed by eye-movement photographs.

The data in Tables I and II show that the permanency of improvement varied with individuals and with different tests. Pupils 1, 3, 14, 15, 16, 22, and 24 continued to improve in comprehension after training had ceased. This improvement is shown by the fact that their scores on the tests of permanency were higher than those on the tests administered at the close of the training period. Pupils 5, 17, 18, and 23 maintained part of their improvement in comprehension but not all of it. They made scores on some of the tests of permanency which were lower than those made on the tests administered at the close of the training period. Pupils 2, 4, 13, 19, and 20 showed permanent improvement in comprehension as measured by the Monroe test but no permanent improvement on the Thorndike-McCall scale. Pupil 20 continued to improve in rate after the training period closed. He is the only pupil whose scores on all tests of permanency were higher than his scores on tests taken at the close of the training period. Pupils 4, 5, 13, 14, 15, 16, 17, 18, 19, and 24 maintained part of their improvement in rate. They made higher scores on all tests of permanency than they made on tests taken at the beginning of the training period. However, they made lower scores on some tests of permanency than on some tests taken at the close

of the training period. The score of Pupil 2 on the Gray test revealed permanent improvement in rate, but his score on the Monroe test did not, while the scores of Pupils 1, 3, and 23 on the Monroe test showed some permanent improvement in rate, but their scores on the Gray test did not. The scores of Pupil 22 revealed no permanent improvement in rate. These facts suggest three conclusions relative to the permanency of improvement: (1) In general, the gains persisted from six to nine months after the training had been discontinued. (2) Some pupils continued to improve after training had been discontinued; others failed to maintain the degree of proficiency obtained during the training period but maintained some of the gains. (3) The persistency of gains in comprehension appears to be greater than is the persistency of gains in rate.

Data relative to the permanency of improvement shown by eye-movement photographs were available for only fourteen pupils and are presented in Table IV. Pupils 2, 14, and 19 continued to improve in all phases of eye-movements after the training was discontinued. Pupils 1, 3, 4, and 20 maintained some of the gains made during the training period but showed some loss in facility during the interval between the second and third photographs. Pupils 4, 5, 13, 16, 18, and 24 maintained some of their gains in the reduction of fixations and regressions but made increases in the duration of fixations. The records for Pupil 15 do not show gains when the first and third photographs are compared. However, a comparison of the records of the second and third photographs shows a reduction in the number of fixations and in the duration of fixations in the interval following the training period. As explained in the preceding section, the records of Photographs I and II for Pupil 15 are not really comparable; the records of Photographs II and III, which are comparable, show permanent gain. The training provided for Pupils 23 and 24 was such that little improvement in eye-movements was expected. In general, the eye-movement records give evidence of permanent improvement in facility of reading. The character of the change in eye-movements differed with individuals. Permanent improvement occurred most frequently in reductions in the number of fixations and in the number of regressions.

INFLUENCES LIMITING THE EFFECTIVENESS
OF REMEDIAL INSTRUCTION

Reference has been made frequently to influences which aid in explaining the limited progress made by certain pupils. Such influences in some cases were sufficiently pronounced to limit seriously the effectiveness of remedial instruction. Examples of several limiting influences follow.

Pupils 7, 15, and 21 exhibited no more than passive interest in the remedial instruction, and the remedial worker was not able to stimulate active interest on their part. The out-of-school interests of Pupil 7 were dominantly social. She appeared to be interested in reading during the periods of remedial instruction, but she could never find time to read of her own initiative. Other interests dominated to the exclusion of reading. Pupil 21 also failed to develop a genuine interest in reading. His dominant interest was in manual activities, such as shop courses. At school he voluntarily devoted extra time to shop courses. At home he busied himself with numerous manual activities. He did no voluntary reading whatever. Pupil 15 attacked all school work as a "task to be performed," and this attitude was carried over into the remedial work. He performed his tasks faithfully but developed little interest in them.

Personality traits handicapped two pupils. Pupil 6 had a dreamy, meditative disposition, which made it difficult for her to direct her attention effectively to content. She frequently stopped reading to ask questions in no way related to the passage she was reading. If undisturbed, she would meditate for long periods of time. She often forgot appointments with the remedial worker even though they were scheduled as a part of her regular program. Pupil 22 had a very impulsive disposition. He was an exceedingly rapid reader, who seldom interpreted accurately even simple material. He often expressed erroneous ideas about a passage as the result of a tendency to jump at conclusions without reading carefully.

Pupil 8 had developed an attitude of discouragement, which handicapped him greatly. His difficulties had originated in the initial stages of learning to read in the first grade, and he continued to encounter difficulties throughout the elementary school. A brother had experienced similar trouble, and Pupil 8 interpreted their dif-

ficulties as family characteristics. Both he and his mother considered his reading difficulties hereditary characteristics, which he would outgrow in time as his brother had done. This attitude resulted in poor habits of application and mediocre progress.

Pupil 25 was handicapped by a weak physical condition. She was absent frequently because of illness and lacked the vitality and energy necessary for good school work.

The progress of Pupil 27 was handicapped by reading practices in her home. The members of the family spent much time reading aloud to one another. Pupil 27 had done relatively little silent reading before entering the seventh grade. She found the work of this grade extremely difficult. In order to overcome the difficulties, her mother adopted the practice of reading school materials aloud to the pupil at home. This practice continued throughout the period of remedial training. Since the pupil depended upon her mother's assistance instead of reading for herself, effective habits of silent reading developed slowly.

SUMMARY AND INTERPRETATION

The data presented in this study show that remedial instruction in reading may be carried on with profit to pupils in the junior high school. The results of the tests show that twenty-three of the twenty-seven pupils made greater improvement in reading during periods of training varying from eight to twenty-four weeks in length than would be expected in a year's school work without special training. Eye-movement photographs confirmed the results of the tests. Photographs were not obtained for one pupil (Pupil 22). Another (Pupil 6) made significant improvement in her eye-movement records, but she did not show corresponding improvement in test scores. In some cases the amount of gain in test scores and eye-movement records was three to five times as large as the expected gain. The character of the improvement varied with individuals and with the type of training provided. Scores on reading tests show that nine pupils made significant improvement in both rate and comprehension, that five pupils made significant improvement in comprehension, and that nine pupils made significant gains in rate. Photographs of eye-movements also reveal varying results. Eight-

een pupils made significant reductions in the number of fixations per line, seventeen pupils made significant reductions in the number of regressions per line, and fourteen pupils made significant reductions in the duration of fixations. Because of the varying results of remedial instruction a variety of measures are required to determine the effectiveness of training. Further studies are needed to determine the specific effects of specific types of training.

The degree of permanency of training also differed with individuals. Some pupils continued to improve after training had been discontinued. Evidently, these pupils were stimulated to put forth independent effort. Other pupils failed to maintain the degree of proficiency shown at the close of the training period. Probably, these pupils were stimulated to a degree of effort by remedial instruction which did not persist after training ceased. In all cases in which significant improvement was made during the periods of training, there was evidence of the persistence of some improvement for at least six to nine months after training had been discontinued. While the degree of permanency varied with individuals, the remedial instruction, in general, resulted in permanent improvement.

The effectiveness of remedial instruction was conditioned by such influences as dominant interests, personality traits, attitudes, physical condition, and home environment. It is essential that the remedial worker be familiar with the conditions influencing individual cases in order to assist the pupils in overcoming them. In this study such influences frequently limited the effectiveness of remedial instruction in spite of the efforts of the remedial worker.

THE CO-OPERATIVE PREPARATION OF IMPROVED EXAMINATIONS

MANLEY E. IRWIN AND PAUL T. RANKIN
Public Schools, Detroit, Michigan

This article reports the program of co-operative construction and use of improved semester examinations at the junior and senior high school level by teachers in the public school system of Detroit. The program now in use was initiated about six years ago in an effort to provide better measurement of the ability of pupils with a smaller expenditure of time and energy on the part of the teachers.

It was recognized that examinations of the traditional type prepared by individual teachers have many faults, which have been pointed out frequently.^a At the junior and senior high school level standardized tests have not proved altogether satisfactory substitutes for traditional examinations. The objectives aimed at in particular courses in the high school are accepted much less generally than are the objectives in the courses in the elementary school. As a consequence, standardized tests devised by a specialist or by a group of specialists to meet certain objectives may not be particularly useful in those courses which are taught with different purposes in view. For this reason, such tests have been used much less widely in secondary schools than in elementary schools. It should be said, however, that there is considerable danger in the implication that the objectives of a particular course, such as English literature, in any state or city, or even in any individual school, should differ materially from those in another state or city or school. The movement of the population from section to section of the country is too great and the value of a common core of culture in America is too

^a a) C. W. Odell, *Traditional Examinations and New-Type Tests*, pp. 175-204. New York: Century Co., 1928.

b) G. M. Ruch, *The Objective or New-Type Examination*, pp. 70-106. Chicago: Scott, Foresman & Co., 1929.

c) Jacob S. Orleans and Glenn A. Sealy, *Objective Tests*, pp. 4-32. Yonkers-on-Hudson, New York: World Book Co., 1928.

well recognized to justify wide variations from city to city, even granting the rather doubtful assumption that the objectives of studying English literature in Omaha ought to be different from those in Duluth.

As a matter of fact, one reason Detroit particularly needed examinations for city-wide use was that better unification of the teaching in the secondary schools of the city might be secured. The citizens of any community object to the development of radically different contents of courses in similar schools in different sections of that community. This objection is caused in part by the fact that many pupils move from one section to another and in part by the desire to avoid unfortunate distinctions among schools. Both reasons contributed to the desirability of constructing co-operatively objective examinations for city-wide use in various secondary-school subjects in Detroit.

Co-operative effort.—The solution of difficult and complex problems generally demands co-operative effort, and the preparation of good examinations is no exception. Many of the faults of examinations of the essay type result from the fact that the typical examination of that type is prepared by a single person. When the program for preparing objective examinations in Detroit was settled upon, it was decided at the outset that the examinations should not be prepared by one individual nor by one department but that they should be the result of co-operative effort.

True co-operation involves three essential elements: a common purpose, specialization of function, and a division of labor. In Detroit the first essential of co-operation already existed: from the beginning, teachers, principals, and supervisors have wished to make better examinations. Specialization of function is assured through the makeup of the committees. Each committee appointed to prepare an examination consists of from five to eighteen members and usually includes a classroom teacher from each school concerned, the supervisor of the subject concerned, and a member of the Department of Research, who serves as chairman. The teachers have the requisite training in the special field and immediate contacts with boys and girls in the classroom; the supervisor contributes his broader training and wider point of view as to the objectives at

which the course should aim and as to the methods to be used in attaining these objectives; the representative of the Department of Research supplies special training and experience in the technique of test construction and evaluation. Division of labor is provided by distributing the work of construction among various members of the group in accordance with their special abilities.

The general plan of procedure.—In Detroit a number of committees are appointed early in the autumn of each year to build examinations in certain subjects. These committees devote their first several meetings to a study of methods of examination, types of examination questions, and the special advantages and disadvantages of each type. This first step is essentially a period of training conducted by the representative of the Department of Research. Of course, as the program progresses year after year and more teachers are acquainted with such matters, this training period tends to disappear.

The next step is the development of the plan of procedure in the committee. This plan is arrived at usually in a co-operative manner and differs somewhat from subject to subject. In general, however, the plan includes the following steps: (1) decision as to the specific objectives which are aimed at in the course and their relative importance, (2) decision as to the general pattern of the examination, (3) the selection of important items which should be tested, (4) the casting of these items into test form, (5) the appraisal and revision of these test items, (6) the final selection of the test items from the list of approved items and their arrangement in accordance with the pattern and distribution of emphasis agreed upon, (7) the preliminary trial and subsequent revision of the tentative form of the examination, (8) the preparation of directions for pupils and teachers, (9) the final trial and the collection of data with regard to norms and reliability of the test as a whole and with regard to the validity and difficulty of the individual items, and (10) statistical study of the test and test items.

The objectives of the course.—Probably the greatest single value resulting from the co-operative preparation of examinations as contrasted with the results of individual effort is the greater validity of the objectives which are adopted and the better distribution of em-

phasis among them. Each committee formulates the objectives of the course upon which it is working and decides the relative proportion of the examination which will be devoted to each. In some cases the objectives are taken over chiefly from some previously published material; for example, the objectives of the courses in Latin are taken from the report of the American Classical League.¹ In some cases the objectives which have already been prepared and included in the local course of study are adopted. In still other cases the objectives are written out and accepted by the committee preparing the examination. Whichever of these methods is used, each member of the committee rates the objectives by distributing 100 per cent among them in accordance with his concept of their relative importance. These percentages are then averaged, and the examination is built to provide the distribution of emphasis agreed upon. Thus, the distribution of emphasis in the Detroit examination for Latin IV was half to the immediate objectives of the teaching of Latin and half to the ultimate objectives. Each of these parts was in turn further subdivided in terms of particular objectives.

The pattern.—The pattern may be described simply as a detailed plan of the general makeup of the examination. The committee decides upon the general pattern of the examination in the light of the special needs of the particular subject and on the basis of the types of questions which seem most appropriate for testing pupils' abilities in that field. The pattern may be very simple; for example, in the examination for Latin IV it was decided to print the examination in two parts, one covering the immediate objectives and one the ultimate objectives. In this case the original pattern prescribed that the part of the examination covering the immediate objectives should present three Latin selections for translation, two of which were material which had been studied by the pupils and one of which was entirely new to them. Ability to translate Latin was to be tested by requiring the pupils to write out brief answers in English to questions in English about the Latin selection. This part also provided for a section which would test the pupils' knowledge of Latin construction and of the relevant rules.

¹ Advisory Committee of the American Classical League, *The Classical Investigation*, General Report, Part One, chap. iii. Princeton, New Jersey: Princeton University Press, 1924.

The selection of the test items.—After the major divisions of the course and the pattern of the examination have been agreed upon, the work is divided among the members of the committee, two or three persons with diverse interests being selected to work upon each group of objectives. This group of workers is chosen in order that the resultant examination may represent as completely as possible the various points of view which may be held regarding the subject matter. Thus, the individual members of the committee preparing the examination in history may have very different views as to the significance of economic questions in the development of human relations. A genuine effort is made in such a case to insure that every section of the course is covered by an individual who believes in the economic interpretation of history and by another who tends to minimize the economic emphasis in history.

The persons who are assigned to work on each section of an examination select the items which they consider important and arrange them in a test of the form which seems most appropriate. Often preliminary tryouts of the items are given pupils at this stage. In some cases the pattern provides that all the questions dealing with a particular topic or phase of the course shall be in some one form, such as the matching type. Such a procedure is very much worth while because it makes the final product more readily diagnostic than it would otherwise be. This plan is being followed increasingly in constructing the more recent Detroit examinations.

The items submitted to the committee by various members are reviewed and revised as seems necessary. Each proposed item is judged by two criteria: (1) Do all members of the committee agree on the answer? (2) Do the majority of the committee members consider that the item is of sufficient importance to justify including it in the examination to be given at the end of the semester?

Final arrangement of the examination.—The work which has been described up to this point results in a list of approved items from which the items actually to be used in the final form of the examination can be selected. This selection is ordinarily made from the list of approved items by the chairman of the committee, who keeps in mind the pattern and the distribution of emphasis agreed upon. Thus, if the test on chemistry is to consist of 160 items and the

committee has voted to place 15 per cent of the emphasis on alkalies and alkali earths, then 24 items are included in this division.¹

After the questions have been selected, a great deal of care is taken in their arrangement on the examination paper. All questions of true-false and completion types are numbered on both sides of the page for convenience in scoring. Diagrams are placed on the page on which appear the questions referring to those diagrams. As far as possible, the questions are arranged by topics so that the examination may be more or less diagnostic. The score on each topic is recorded in a heading at the top of each part of the examination. This arrangement makes it possible for a teacher to find readily the strengths and the weaknesses of each pupil. The tentative arrangement of the final form is reviewed by the entire committee to make sure that the pattern has been adhered to and that there are no items which are unsatisfactory. At this point the examination is usually subjected to a preliminary trial with several hundred pupils. On the basis of the results of this trial, revisions in particular questions or in the directions to pupils may be made. Finally, detailed directions for the teachers, which include a key, are prepared and approved by the committee. In Detroit the directions for the teachers are usually mimeographed, and the tests are printed.

The products of the work to date.—The teachers in the junior and senior high schools in Detroit have already built improved examinations in all major departments except fine arts and vocational education. In all, 35 examinations have been built, and more than 250 teachers have participated in their construction. These examinations cover two semesters of bookkeeping, two of shorthand, five courses in English, two courses in Latin, one course in French, one semester of health education, six semesters of history, seven courses in mathematics, two in biology, two in chemistry, and two in physics. An examination to measure the degree of attainment of the cardinal objectives of secondary education designed for the

¹ It is recognized, of course, that the relative weight of a particular group of items in an examination depends not upon their number but upon the dispersion of the scores made on them. However, the dispersion on each section is not known before the actual trial of an examination in final form. Moreover, the dispersion of the scores on a section tends to vary with the number of items.

whole range of grades in high schools, a mathematics-inventory test, and a literature-appreciation test have also been worked out.

All the examinations have the same format. Each examination is arranged in two parts: Part I is given at one class period and Part II at another. The length and number of items of an examination are such that each part can be given and scored during a class period of forty-five minutes. The pupils are given thirty or thirty-five minutes' actual working time on each part, depending upon the nature of the examination. The remainder of the class period, about ten minutes, is sufficient for presenting and scoring that part of the test. The number of items included in each part depends upon the type of questions asked and upon the time¹ required by the pupils to read the questions and write the answers. Each examination is accompanied by a key and a set of detailed directions for its administration. Whenever the examinations are used, a bulletin of general explanations and suggestions regarding the uses of new-type examinations is provided for each teacher.

Reliability of the examinations.—Most of the Detroit examinations which have been prepared in the manner described have been studied to determine their objectivity and reliability and the validity of the individual items. Reliability—the degree to which a test actually measures whatever it does measure, or, in other words, the degree to which it measures consistently from one application to another—is a major criterion of a good examination. Reliability is usually reported as the coefficient of correlation between the scores achieved on the same test by the same pupils in two testings given at different times. The reliability of an examination may also be found by first computing the correlation between the scores on the odd-numbered items and those on the even-numbered items and by then predicting, by use of the Spearman-Brown prophecy formula,² what the correlation would be between the scores on the entire examination and the scores on the same examination or an equivalent form repeated later. The latter procedure is used in studying the reliability of the Detroit examinations.

¹ For figures on comparative working time on different types of questions, see G. M. Ruch, *op. cit.*, pp. 306-13.

² Henry E. Garrett, *Statistics in Psychology and Education*, p. 269. New York: Longmans, Green & Co., 1926.

The complete list of improved examinations thus far prepared co-operatively in Detroit and the reliabilities of those for which data are available are given in Table I. All but two of the twenty-two reliability coefficients presented are above .80, and seven are .90 or above. These figures compare well with those for standardized tests, and they are far above corresponding figures for examinations of the ordinary essay type devised by individual teachers. These figures indicate that examinations which are co-operatively prepared in the manner described meet rather well at least one statistical requirement of a good test.

The examinations in Table I which are marked with an asterisk are published in Ruch and Rice's *Specimen Objective Examinations* and won prizes or honorable mention in a contest sponsored by Ruch and Rice.

Validity of items.—The entire procedure in preparing the test items was designed so that valid items would result. To measure the degree to which this purpose was accomplished and to facilitate future revision, the writers studied the individual items of most of the examinations from the point of view of validity, that is, the degree to which they discriminate between superior and inferior pupils in the course for which the examination is intended. For this purpose, the papers were sorted on the basis of the final semester mark reported for each pupil, as this mark was believed to be the best available estimate of ability in the course. The percentage of pupils in each marking group—the percentage of all pupils receiving A's, B's, C's, D's, and E's, respectively—who answered each item correctly was computed for every item. The most valid items, obviously, are those that differentiate most surely and most accurately between the A's and E's, between the B's and C's, and so on.

Table II shows some of the results of this analysis by items in an examination in English literature. This table shows that Items 17 and 31 discriminate well, that Item 7 is a poor item because it does not discriminate sufficiently, and that Item 92 discriminates in the wrong direction. Study of the complete tables, from which Table II is a selection, helps teachers and principals to understand the characteristics of a good examination item and to learn how to avoid writing items that make no differentiations or items that differentiate in the wrong direction.

TABLE I

THE DETROIT EXAMINATIONS, GRADE IN WHICH EACH IS USED, YEAR IN WHICH EACH WAS PREPARED, NUMBER OF MINUTES ALLOWED FOR ADMINISTERING COMPLETE TEST, NUMBER OF PUPILS IN STUDY OF RELIABILITY, AND RELIABILITY COEFFICIENT FOR EACH EXAMINATION

Subject Tested	Grade	Date	Time Allowance	Number of Pupils†	Reliability Coefficient
Cardinal Objectives, Form A.....	IX B-XII A	1929	70	.....	.....
Commercial subjects:					
Bookkeeping I*.....	IX B	1926	60	.....	.....
Bookkeeping II*.....	IX A	1927	60	67	.89
Shorthand I*.....	IX B, X B	1927	60	.....	.....
Shorthand II.....	IX A, X A	1928	70	144	.95
English:					
English I (Composition I)*.....	IX B	1925	60	236	.61
English III (Composition II).....	X B	1928	70	518	.81
English V (Composition III).....	XI B	1929	70	178	.91
English VI (English Literature I)*.....	XI A	1926	60	195	.88
English VII (English Literature II)*.....	XII B	1927	60	180	.87
Literature-appreciation test.....		1930	.....	.....	.....
Foreign languages:					
French III.....	X B	1929	35	.....	.....
Latin II.....	IX B	1930	70	.....	.....
Latin IV.....	X A	1928	70	360	.89
Health Education II.....	IX A	1930	70	.....	.....
History:					
History I (World-History I).....	IX B	1929	70	.....	.....
History II (World-History II).....	IX A	1930	70	.....	.....
History III (European History I).....	X B	1927	60	133	.86
History IV (European History II).....	X A	1926	60	70	.78
History VII (American History I).....	XII B	1925	60	100	.85
History VIII (American History II).....	XII A	1925	60	.....	.....
Mathematics:					
Intermediate Mathematics VII B.....	VII B	1930	70	.....	.....
Mathematics I (General Mathematics I)*.....	IX B	1925	60	286	.88
Mathematics II (General Mathematics II)*.....	IX A	1925	60	196	.86
Mathematics III (Algebra I).....	X B	1926	50	455	.89
Mathematics IV (Algebra II).....	X A	1928	70	158	.90
Mathematics V (Geometry I)*.....	XI B	1927	60	203	.91
Mathematics VI (Geometry II).....	XI A	1929	70	109	.84
Mathematics-inventory test.....	X B	1930	.....	.....	.....
Science:					
Biology I*.....	X B	1925	60	192	.88
Biology II.....	X A	1925	60	177	.85
Chemistry I*.....	XI B	1926	60	213	.93
Chemistry II.....	XI A	1928	70	355	.90
Physics I.....	XII B	1927	60	77	.96
Physics II.....	XII A	1930	70	.....	.....

* Published in G. M. Ruch and G. A. Rice, *Specimen Objective Examinations*. Chicago: Scott, Foresman & Co., 1930.

† The number on which the reliability coefficient was based.

Values derived from the program.—The examinations have proved satisfactory to the teachers, not only because they measure the pupils' work accurately, but also because they save hours of time in marking papers. The tests are usually scored by the pupils, and the teachers need spend only a few minutes in tabulating, recording, and interpreting the results.

Because of the greater care taken in their preparation, the new-type examinations are believed to be more nearly a true index of a pupil's ability in a subject than the traditional examinations which were formerly used.

TABLE II
PERCENTAGE OF PUPILS IN EACH OF FIVE MARKING GROUPS WHO
ANSWERED CORRECTLY CERTAIN ITEMS IN EXAMINATION IN
ENGLISH LITERATURE II

ITEM	MARKING GROUP					DIFFER- ENCE BE- TWEEN A AND E
	A	B	C	D	E	
Very good items:						
17.....	100	81	70	40	37	63
31.....	69	44	42	27	21	48
Poor item:						
7.....	100	97	100	100	95	5
Very poor item:						
92.....	23	47	55	53	63	-40

One valuable by-product of the preparation of these examinations is the way in which teachers apply in their classrooms the ideas of measurement presented and discussed in the committee meetings. By using these ideas, the teachers are able to build brief objective tests which require little class time in administration. An even more important by-product of the work of the committees is the way in which the instructional program has been unified as a result of the exchange and interaction of ideas expressed in the meetings regarding the objectives, methods, and materials of the various courses. This outcome of the committee activity is considered by supervisors, principals, and the administrative staff as a major contribution to the work of the schools.

Present tendencies.—The program of co-operative preparation of improved examinations is being continued in Detroit, although mod-

ifications are made from time to time. More and more attention is being given to the construction of tests for use as inventory tests at the beginning of the training period rather than for use as final examinations. This tendency is accompanied by a tendency to make the tests more highly diagnostic than they now are.

Another trend which seems to be growing is a movement to measure the contributions made by particular subjects to the general objectives of education. An examination has already been devised for measuring the extent of the attainment of the seven cardinal objectives of secondary education.¹ Too often only a few of the cardinal objectives or of other recognized aims, such as tolerance or scientific attitudes, are emphasized in the teaching of secondary-school subjects. Tests are needed to determine how far these objectives are being realized and at what point the pupils need help in attaining them.

¹ *Cardinal Principles of Secondary Education*, United States Bureau of Education Bulletin No. 35, 1918. See also *Cardinal Objectives in Elementary Education with a Series of Reports by Classroom Teachers Illustrating Ways and Means of Attaining These Objectives*. Albany, New York: University of the State of New York, 1929.

RESULTS OF A HOW-TO-STUDY COURSE GIVEN IN HIGH SCHOOL

D. FRED GATCHEL

Sequoia Union High School, Redwood City, California

This article reports measured results of a how-to-study course that was given by the writer in the Sequoia Union High School at Redwood City, California, during the second semester of the school year 1929-30.

Teachers are beginning to realize that a pupil's success in school and in later life depends largely upon his methods of work, upon his ability to use profitably his energy and time, upon his ability to read and get facts accurately and quickly from books, and upon the attention which he gives to making all objective and psychological conditions favorable for his success. A number of high schools and colleges are acting upon these ideas by organizing special courses in methods of study.

A number of educational leaders have become interested in this field and have made valuable contributions either through experimentation or through textbooks on the subject of how to study written for pupils. Such men as Crawford, Charters, Book, Whipple, Headley, Edwards, Adams, McMurry, Thomas, Kitson, May, and others have stimulated the interest of teachers and administrators to establish study courses in their schools as a means of raising the standards of achievement and of conserving the time and energy of the pupils. The study which is reported in this article was made under the inspiration of Claude C. Crawford, whose book *The Technique of Study*¹ was used to provide the basic content of the course.

THE PROCEDURE

The procedure of the experiment was the equivalent-group type outlined by Crawford² and involved the comparison of three pairs of

¹ Claude C. Crawford, *The Technique of Study*. Boston: Houghton Mifflin Co., 1928.

² Claude C. Crawford, *The Technique of Research in Education*, p. 37. Los Angeles, California: University of Southern California, 1928.

equivalent groups. In March, 1930, the author selected eighty-five pupils of low and medium mentality from the ninth, tenth, and eleventh grades of the high school in which he was teaching. These pupils comprised a ninth-year English class, a tenth-year class in junior business practice, and an eleventh-year history class, all of which were taught by the writer. Each of these three classes was divided into two groups, which were designated as Group A and Group B throughout the experiment. Group A was given the how-to-study course, and Group B was not. The two groups were equated as nearly as possible according to chronological age, mental age, intelligence quotient, reading score, total score in the Stanford Achievement Test, and an initial objective test in the subjects in which the pupils were enrolled with the writer. Equated groups were secured by matching individual pupils as to intelligence and then making such shifts as were necessary to get equivalence in the other items. In general, the averages of the two groups in each case were very close, and the two groups were as nearly comparable as it was possible to arrange them. Forty-three pupils were given the course in how to study, and forty-two were not.

The study extended over a period of eight weeks. On three days a week the writer met with Group A in a separate room while Group B remained in the classroom under the leadership of an advanced pupil. Group A was given instruction in methods of study, and Group B was given written work or a study assignment or was allowed to hold a group discussion in the subject for which the class was scheduled. Group B did the same regular work in the subject under the leadership of a pupil that Group A did under teacher direction, but Group B spent on the subject matter the time which Group A was giving to the subject of how to study.

The writer organized the content of the how-to-study course into the following main divisions: (1) the characteristics of a good student, (2) environment and equipment necessary for effective study, (3) classroom attitude, (4) habits of study as they affect the preparation of lessons, (5) methods of review, and (6) preparation for tests. Particular emphasis was placed on the importance of conserving time and energy and on the value of the right attitude toward instructors and school work. The material for this course was presented largely by the lecture method. The pupils were instructed in note-

taking and were required to record the salient points of each discussion. A portion of each period was devoted to a discussion of particular problems which the pupils themselves presented. The teacher laid stress on the actual application of the instruction in methods of study and encouraged the pupils to report how they were applying the information to their daily work in other courses.

At the close of the eight weeks' period both groups were again given the objective test which had been administered at the beginning of the experiment. This test consisted in true-false and completion items to test the pupils' knowledge of the subject matter of the course. The results of the how-to-study course were judged by a comparison of the improvement of Group A and Group B in these objective tests and also by the marks received by the two groups in all their subjects. The writer felt that increased ability in tests was not a final indication of improvement in habits of study. Unless the training gained from the course could be transferred to the preparation of lessons, the project would be largely futile. It seemed necessary, therefore, to follow this experimental group in their various subjects in order to determine the extent to which the instruction given in methods of study had influenced the marks received from their various teachers.

The marks which were used as the basis of group comparisons were taken from the office files immediately preceding the experiment and at the close of the semester. Improvement was measured on the basis of the unit of gain made in each subject. For example, if a pupil increased his mark from C to B or from B to A, he made one unit of gain. No improvement was indicated by zero, and a decrease in the mark, such as from A to B or from B to C, was indicated by a negative unit of gain.

STATISTICAL RESULTS

The scores derived from these two sets of comparisons were used as a basis for computing the statistical results. Statistical formulas and tables for computing the reliability of differences were taken from Tiegs and Crawford.¹ Table I shows a compilation of the most significant data derived from the experiment. The scores shown for

¹ Ernest W. Tiegs and Claude C. Crawford, *Statistics for Teachers*, pp. 133-44. Boston: Houghton Mifflin Co., 1930.

the first three subjects represent the results of computations based on improvement in the objective tests which were given at the begin-

TABLE I
GAINS OF GROUPS A AND B IN ALL SUBJECTS OF STUDY AS SHOWN BY TEACHERS' MARKS,
STANDARD DEVIATION OF THE DIFFERENCE, RATIO OF THE DIFFERENCE TO
THE STANDARD DEVIATION, AND NUMBER OF CHANCES THAT THE DIFFERENCE
IS REAL

Subject	Gain of Group A	Gain of Group B	Difference in Favor of Group A	Standard Deviation of Difference	Ratio of Difference to Standard Deviation	Chances that Difference Is Real
Ninth-grade English*	18.25	15.75	2.50	3.26	0.77	3:1
Junior business practice*	22.28	14.50	7.78	2.99	2.60	212:1
Eleventh-grade history*	36.00	34.86	1.14	4.41	0.26	2:1
English:						
Ninth-grade†	0.75	0.00	0.75	0.23	3.26	1,700:1
Tenth-grade	0.47	0.18	0.29	0.16	1.81	27:1
Eleventh-grade	0.55	0.08	0.47	0.26	1.81	27:1
All English classes	0.56	0.10	0.46	0.13	3.54	5,300:1
History:						
Tenth-grade	0.38	0.17	0.21	0.23	0.91	4:1
Eleventh-grade	0.27	— 0.14	0.41	0.20	2.05	49:1
All history classes	0.30	— 0.05	0.35	0.16	2.19	71:1
Physical education:						
Ninth-grade	0.12	0.12	0.00	0.30	0.00	1:1
Tenth-grade	0.14	— 0.13	0.27	0.12	2.25	81:1
Eleventh-grade	0.17	0.09	0.08	0.19	0.42	2:1
All physical-education classes	0.15	0.00	0.15	0.11	1.36	10:1
Science:						
Tenth-grade	0.14	0.00	0.14	0.37	0.38	2:1
Eleventh-grade	0.43	— 0.29	0.72	0.25	2.88	525:1
All science classes	0.29	— 0.16	0.45	0.22	2.05	49:1
Home economics	0.25	0.05	0.20	0.14	1.43	13:1
Junior business practice	0.40	0.00	0.40	0.19	2.11	55:1
Manual training	0.33	0.00	0.33	0.41	0.80	4:1
Mathematics	0.00	0.00	0.00	0.26	0.00	1:1
Typing	0.00	0.18	— 0.18	0.26	0.69	3:1
All subjects	0.26	0.01	0.25	0.06	4.17	59,000:1

* This comparison is based on objective-test scores.

† A fractional gain—for example, 0.75—means that the pupils raised their average mark three-fourths of a mark, that is, three-fourths of the distance from C to B.

ning and at the end of the study. The scores for the other subjects shown in the table are based on units of gain made in the marks in all the subjects included in the study. This table shows that Group

A made more improvement than Group B in every subject except mathematics, ninth-grade physical education, and typing. The two groups were exactly tied in mathematics and in ninth-grade physical education. The gain of Group A in typing was slightly less than that of Group B.

Since these two groups were carefully equated at the beginning of the experiment for mentality and achievement, the superior improvement of Group A points to the conclusion that the how-to-study course actually had an effect on their work under most of their teachers and in most of their subjects.

The most important columns in the table are those headed "Ratio of Difference to Standard Deviation" and "Chances that Difference Is Real," which show what the odds are that, if infinite numbers of cases had been included in the experiment, the difference would still have been above zero. To indicate certainty that the differences are real and not the result of chance errors of sampling, a difference should be about three times the standard deviation of the difference, as shown in the ratio column: this ratio would represent chances of about 5,300 to 1. The fact that few of the differences were great enough to yield such a high degree of certainty is not because the differences were small but rather because there were small numbers of cases in the groups. When the marks in all subjects are compared, the number of cases is larger, and the chances are 59,000 to 1 that the how-to-study group reveals a real superiority over the other group.

The fact that the differences are, with only three exceptions, favorable to the how-to-study group is additional evidence of their reliability and tends to justify faith in their genuineness even though in many cases the statistical chances are low.

Perhaps the last item in the table, which shows the gain in all subjects, is the most interesting of all. The how-to-study group improved their marks to the amount of 0.26, or about one-fourth, of a mark. The other group improved only 0.01 of a mark. When it is recalled that this gain was the result of only eight weeks of instruction in how to study, running concurrently with the courses in which those marks were earned, the difference in improvement is still more significant.

Table II shows the amount of gain or loss in marks in all subjects combined. In Group A the number of marks which came up is more than twice the corresponding number in Group B. The number of marks in Group A which came down is approximately one-third the corresponding number in Group B.

TABLE II
NUMBERS OF MARKS WHICH WENT UP ONE MARK, NUMBER WHICH
WENT DOWN ONE MARK, AND NUMBER WHICH SHOWED NO
CHANGE FOR PUPILS IN GROUPS A AND B IN ALL COURSES

Change	Group A	Group B
Up one mark.....	53	25
No change.....	111	125
Down one mark.....	8	23
Average.....	0.26	0.01

NON-STATISTICAL RESULTS

While the judgment of the results of any experiment should be based largely on objective measurements, there are certain intangible results which are not objectively measurable. Although it is necessary to rely on subjective opinion and personal views in order to determine these non-statistical results, such subjective evidence should be given consideration in every study.

The pupils of Group A were asked to record the benefits that they had derived from the how-to-study course. They were urged to be sincere and were assured that their papers would not be checked for identity. The most frequently mentioned benefits were conservation of time and energy in preparing a lesson, increased interest in school work, and increased comprehension in reading.

The teachers who taught these eighty-five pupils were asked to check the names of those who, in their opinion, had shown improvement in class attitude and quality of work. Since these teachers did not know the grouping of the pupils, their ratings should have significant bearing on the results of the experiment. An analysis of their opinions showed that 50 per cent of the how-to-study group had improved in attitude and in quality of work as compared with only 30 per cent of the group that did not have the course.

The writer made careful observations during the entire study and noted that the attitude of the how-to-study group was one of increased enthusiasm and alertness. The ninth-year pupils seemed to benefit particularly from the course; they were given helpful supervision and guidance at the very time they needed it most. The more advanced pupils showed greatest improvement in the more serious thought injected into their papers and discussions.

CONCLUSIONS

It seems evident from this investigation that it is possible to train pupils in methods of study and that such training carries over into a variety of subjects. Whether judgment is based on statistical or non-statistical evidence, the conclusion is apparent that the how-to-study group made superior improvement during the period of this experiment. It is probable that still greater differences might have been found if the how-to-study course had been given at the first of the year so that the pupils could have applied it to their other courses for a longer time.

THE CORRELATION OF HIGH-SCHOOL SCHOLASTIC SUCCESS WITH LATER FINANCIAL SUCCESS

J. R. SHANNON AND JAMES C. FARMER
Indiana State Teachers College, Terre Haute, Indiana

The November, 1929, issue of the *School Review* carried a report of the post-school careers of about a hundred graduates in the classes of 1914-19, inclusive, from the Garfield High School, Terre Haute, Indiana.¹ The group consisted of some persons who had been leaders when they were in high school, some who had excelled in scholarship and whose names had been placed on the honor roll of the school, and some who were selected at random from the lists of graduates. Comparisons of the three groups were made with respect to seven points of post-school accomplishment, one of which was net annual income. By going through the registrar's records and determining the average scholarship of each pupil during his high-school career, the writers of the present article secured data which could be used with the data on net annual incomes to determine the correlation of scholastic success in high school with the later financial success of these pupils. These data are presented in Table I.

The details of the procedure followed in gathering the data were given in the report previously published. In the present report, therefore, only those details will be mentioned which contribute toward an understanding of Table I.

1. No attention is given here to the three groups into which the pupils were classified in the original study.
2. Fewer cases appear here than appeared in the original study for three reasons: (a) Some pupils were members of more than one of the three groups considered in the original study. (b) Scholarship data were not available for some pupils because not all their work had been done in the one school and their transcripts were not com-

¹ J. R. Shannon, "The Post-School Careers of High-School Leaders and High-School Scholars," *School Review*, XXXVII (November, 1929), 656-65.

TABLE I

AVERAGE SCHOLARSHIP OF SIXTY-SIX GRADUATES DURING THEIR HIGH-SCHOOL CAREERS AND THEIR ANNUAL SALARIES FIVE YEARS AND TEN YEARS AFTER GRADUATION MULTIPLIED BY COST-OF-LIVING INDEX NUMBER

PUPIL	AVERAGE SCHOLARSHIP	SALARY FIVE YEARS AFTER GRADUATION	INDEX NUMBER	PRODUCT	SALARY TEN YEARS AFTER GRADUATION	INDEX NUMBER	PRODUCT
Class of 1914							
Women:							
1.....	93.0	\$1,080	138.6	149,688	\$1,650	98.1	161,865
2.....	96.0	1,000	138.6	138,600	.....	.....	.....
3.....	83.0	850	138.6	117,810	.....	.....	.....
4.....	84.5	960	138.6	133,056	1,440	98.1	141,264
Men:							
1.....	82.1	2,200	138.6	304,920	2,400	98.1	235,440
2.....	87.9	402	138.6	55,717	1,300	98.1	127,530
3.....	77.3	900	138.6	124,740	1,900	98.1	186,390
4.....	84.0	.....	.....	.....	4,500	98.1	441,450
5.....	82.4	.....	.....	.....	1,800	98.1	176,580
6.....	86.3	1,250	138.6	173,250	2,950	98.1	289,395
7.....	84.5	800	138.6	110,880	1,900	98.1	186,390
8.....	87.8	1,050	138.6	145,530	3,100	98.1	304,110
Class of 1915							
Women:							
1.....	86.3	1,200	154.4	185,280	1,440	103.5	149,040
2.....	85.6	1,200	154.4	185,280	1,900	103.5	196,650
3.....	93.9	900	154.4	138,960	.....	.....	.....
Men:							
1.....	94.8	.....	.....	.....	3,300	103.5	341,550
Class of 1916							
Women:							
1.....	94.0	1,250	97.6	122,000	1,525	100	152,500
2.....	92.1	.....	.....	.....	1,200	100	120,000
3.....	93.3	1,200	97.6	117,120	1,520	100	152,000
Men:							
1.....	89.0	1,500	97.6	146,400	2,800	100	280,000
2.....	83.0	2,210	97.6	215,696	2,210	100	221,000
3.....	80.5	3,000	97.6	292,800	5,200	100	520,000
4.....	93.0	.....	.....	.....	2,000	100	200,000
5.....	84.1	1,080	97.6	105,408	3,200	100	320,000
6.....	92.2	1,500	97.6	146,400	.....	.....	.....
Class of 1917							
Women:							
1.....	88.1	1,400	96.7	135,380	1,440	95.4	137,376
2.....	79.3	840	96.7	81,228	2,400	95.4	228,960
3.....	86.0	800	96.7	77,360	1,800	95.4	171,720
4.....	93.0	938	96.7	90,705	1,408	95.4	134,323

TABLE I—Continued

PUPIL	AVERAGE SCHOLAR- SHIP	SALARY FIVE YEARS AFTER GRADUA- TION	INDEX NUMBER	PRODUCT	SALARY TEN YEARS AFTER GRADUA- TION	INDEX NUMBER	PRODUCT
Class of 1917—Continued							
Men:							
1.	89.5	1,800	96.7	174,060	3,000	95.4	286,200
2.	82.7	3,000	96.7	290,100	2,500	95.4	238,500
3.	92.9	1,800	96.7	174,060	3,000	95.4	286,200
4.	97.4	1,320	96.7	127,644	2,600	95.4	248,040
5.	84.0	.....	.....	.....	2,500	95.4	238,500
6.	87.2	.....	.....	.....	2,000	95.4	190,800
7.	95.2	2,100	96.7	203,070	3,000	95.4	286,200
8.	79.8	1,500	96.7	145,050	3,600	95.4	343,440
9.	80.2	1,000	96.7	96,700	1,500	95.4	143,100
Class of 1918							
Women:							
1.	94.2	1,500	100.6	150,900	1,750	97.7	170,975
2.	95.6	.....	.....	.....	5,200	97.7	508,040
3.	84.6	900	100.6	90,540	.....	.....	.....
4.	85.0	700	100.6	70,420	1,300	97.7	127,010
5.	86.0	1,200	100.6	120,720	.....	.....	.....
6.	94.1	1,050	100.6	105,630	2,600	97.7	254,020
Men:							
1.	96.4	1,500	100.6	150,900	5,200	97.7	508,040
2.	86.7	1,080	100.6	108,648	2,400	97.7	234,480
3.	95.8	1,500	100.6	150,900	2,300	97.7	224,710
4.	91.2	750	98.1	73,575	2,800	97.7	273,560
5.	90.0	1,000	100.6	100,600	1,600	97.7	156,320
6.	79.0	3,000	100.6	301,800	3,600	97.7	351,720
7.	87.8	1,200	100.6	120,720	3,970	97.7	387,869
8.	84.0	.....	.....	.....	2,700	97.7	263,790
Class of 1919							
Women:							
1.	90.3	1,600	98.1	156,960	.....	.....	.....
2.	93.3	1,650	98.1	161,865	.....	.....	.....
3.	93.2	1,300	98.1	127,530	.....	.....	.....
4.	96.4	750	98.1	73,575	.....	.....	.....
5.	94.7	1,200	98.1	117,720	1,600	96.5	154,400
6.	84.1	965	98.1	94,667	.....	.....	.....
7.	94.7	1,500	98.1	147,150	2,500	96.5	241,250
8.	93.5	1,200	98.1	117,720	.....	.....	.....
Men:							
1.	96.2	1,800	98.1	176,580	2,400	96.5	231,600
2.	80.9	900	98.1	88,290	.....	.....	.....
3.	81.6	1,000	98.1	98,100	3,000	96.5	289,300
4.	85.0	1,750	98.1	171,675	3,500	96.5	337,750
5.	93.0	.....	.....	.....	3,000	96.5	289,500
6.	87.3	1,680	98.1	164,808	2,100	96.5	202,650

plete. (c) Some of the graduates were not employed in gainful occupations during the particular years which were used in this study.

3. Correlations were made between average scholarship and net annual incomes received five years after graduation and ten years after graduation.

4. In order that the incomes of these varying years should be comparable, they were multiplied by the cost-of-living index numbers issued by the Bureau of Labor Statistics of the Department of Commerce. The index numbers relate to 1926 as the base.

The coefficients of correlation, secured by the Pearson product-moment formula, are shown in Table II. The correlations, although over half are negative, are so small that they are insignificant.

TABLE II
COEFFICIENTS OF CORRELATION BETWEEN AVERAGE SCHOLARSHIP IN
HIGH SCHOOL AND NET ANNUAL INCOMES FIVE YEARS AFTER
GRADUATION AND TEN YEARS AFTER GRADUATION

	Five Years after Graduation	Ten Years after Graduation
Women.....	.199	-.264
Men.....	-.189	.015
Both.....	-.157	-.077

CONCLUSIONS

The results shown in Table II hardly need discussion. They report a condition which perhaps many people had already suspected. Apparently, scholastic success in high school and financial success later are results of different sets of abilities. The correlations shown suggest that the high-school teacher is not justified in using promise of later financial success as a device for the motivation of class endeavor. However, further investigation is needed.

EVALUATING FRESHMAN WEEK AT OHIO STATE UNIVERSITY

W. H. COWLEY
Ohio State University

The Ohio State University yearly admits approximately three thousand Freshmen. The task of administering efficiently the admission and registration of this large number of new students is in itself a responsibility of no mean proportions; and, since it is the ambition of the president of the University that each new student shall be introduced to his college life not as a name nor as a number but as an individual, the task becomes almost gigantic. A program administratively sound, yet individual and personal, was inaugurated at Ohio State University, at the behest of President G. W. Rightmire, in the autumn of 1927 in the form of a Freshman-week program.

For three years Freshman Week has made its significant contribution in the orientation of Freshmen to the life of the University. The week has been under the direction of three faculty members, organized as the Freshman Week Council. The program during the three years of its existence—slightly modified each year—has included some twenty-four events, eleven of which have been administrative and the remainder social and informative. The administrative events have included the giving of intelligence tests and tests in science and mathematics, foreign languages, English, chemistry, and social sciences; a physical examination; measurement for military uniforms and a talk to the men by the commander of the Reserve Officers' Training Corps; registration of the women with the dean of women; and tryouts for the musical organizations for the several hundred Freshmen interested in musical activities. The non-administrative events have included the following:

1. A general assembly.
2. A tour of the campus.
3. College night.¹

¹ Ohio State University has seven colleges admitting Freshmen.

4. A talk on extra-curriculum activities.
5. A health talk.
6. A tour of the library.
7. A visit to the stadium to witness a football practice.
8. A mixer given by the Young Men's Christian Association and by the Young Women's Christian Association.
9. Church receptions.
10. A conference for parents.
11. Organized optional recreation.
12. An interview between every Freshman and some member of the faculty.
13. A final assembly before the official opening of the autumn quarter.

After the completion of its work in the autumn of 1929 the Freshman Week Council asked President Rightmire to appoint an evaluating committee to review its work. The members of the council were not sure that their own convictions of the value of Freshman Week might not be determined by their closeness to the program. The president appointed a committee of three members, which during several months polled student, faculty, parent, and administrative opinion and collected numerous objective data. The report submitted to the president has not only decisively confirmed the Freshman Week Council in its opinion of the value of its work, but it has demonstrated that Freshman Week has a necessary, a permanent, and a popular place in the administrative economy of the University.

The committee set out to answer two questions about Freshman Week: (1) Does the University community consider Freshman Week important and valuable enough to be continued? (2) If the first question should be answered in the affirmative, should the organization of Freshman Week be amended as a result of the evaluation? A large portion of the Freshman participants filled out an extensive questionnaire as did members of the faculty, parents, upper-class men, and administrative officers. The first question was immediately answered affirmatively and even enthusiastically. The Freshmen particularly were strong in their affirmation. This fact is witnessed by their response to the one item in the questionnaire which sought to summarize their entire attitude toward Freshman Week. The item read: "You have heard the expression 'six of one and half a dozen of another.' Keeping that expression in mind, note

below how you would vote if you had ten votes to cast for or against Freshman Week as you experienced it this year." The votes cast by the Freshmen and by the two other student groups canvassed are summarized in Table I. This table indicates that 88.27 per cent of the Freshmen, 87.27 per cent of the upper-class men, and 100.00 per cent of the student leaders (upper-class men who helped with the program of Freshman Week) cast the majority of their votes for Freshman Week.

TABLE I
DISTRIBUTION OF 1,287 FRESHMEN, 55 UPPER-CLASS MEN, AND 46
STUDENT LEADERS ACCORDING TO THE NUMBER OF VOTES CAST
IN FAVOR OF FRESHMAN WEEK*

NUMBER OF VOTES	FRESHMEN		UPPER-CLASS MEN		STUDENT LEADERS	
	Number	Per Cent	Number	Per Cent	Number	Per Cent
10.....	647	50.27	32	58.18	20	43.48
9.....	103	8.00	2	3.64	8	17.39
8.....	201	15.62	10	18.18	9	19.56
7.....	113	8.78	1	1.82	5	10.87
6.....	72	5.59	3	5.45	4	8.70
5.....	70	5.44	3	5.45	0	0.00
4.....	31	2.41	2	3.64	0	0.00
3.....	21	1.63	0	0.00	0	0.00
2.....	10	0.78	1	1.82	0	0.00
1.....	5	0.39	0	0.00	0	0.00
0.....	14	1.09	1	1.82	0	0.00
Total....	1,287	100.00	55	100.00	46	100.00

* All Freshmen questioned filled in questionnaires since they were distributed in selected classes. Of a hundred queries sent at random to upper-class men and to student leaders, the number responding were 55 and 46, respectively. All respondents signed their names.

The polling of opinion about Freshman Week revealed several criticisms of the program, which the committee evaluated in the course of its work. One of these criticisms was to the effect that Freshman Week is a serious financial burden to Freshmen. Another person averred that residents of the city of Columbus know the campus thoroughly before entering the University as Freshmen and that they are bored with the tour of the campus and buildings. Other criticisms had to do with particular events which individual students found unattractive. Upon all these points the committee sought information. It soon became apparent from the data collected that Freshman Week is no serious financial burden to stu-

dents. Of the 1,287 Freshmen who answered the questionnaire, but 78, or about 6 per cent, said they had suffered serious financial loss; the majority of these, despite their losses, remarked that they felt the investment much worth while. Similarly, the committee laid the ghost of the criticism that Columbus residents are annoyed by the campus tour. Yearly this rumor of discontent has gone the subterranean rounds, but the committee found only a negligible number of Columbus Freshmen who objected to the tour. Columbus residents in recent classes who have held the opposite opinion have apparently been especially vocal, for the committee found that 86 per cent of the Columbus Freshmen entering in 1929 were convinced of the value of the tour, which is now recognized as a very popular and desirable event.

After the general criticisms had been disposed of, the committee proceeded to study each of the twenty-four events. One by one they were weighed, and the data obtained used to answer the second question. With one exception the changes suggested were of minor significance. The committee urged that more importance be given to the interview held with each Freshman by a member of the faculty. By a large measure this event more completely than any other appealed to the Freshmen. These young people coming to the University fresh from high school, in many cases away from home for the first time, found the faculty interview the event of the program which helped them most to become oriented to their new environment.

The plan of organization of Freshman Week calls for a division of the three thousand Freshmen into one hundred sections of thirty students each. Every section is in charge of a faculty member, who is assisted by an upper-class man. These two leaders share the responsibility of directing their section through the program, but in every case the faculty leader does the interviewing, giving each student about a half-hour at some time during the week. In these interviews the most important values of Freshman Week have been achieved. The problems brought to the faculty leaders range from questions about registration and living-quarters to discussions about fraternity membership and choice of vocation. The faculty leader seeks to go over the entire orientation problem of the student as

thoroughly as possible so that the student may begin his work at the University under the best of circumstances. The faculty leader makes a report of each interview, which becomes part of the student's personnel record in the office of his junior dean.

The committee found the plan of interviewing to be basically sound, and certainly the students have been enthusiastic about its importance. One or two improvements were suggested, and these were adopted and incorporated in the 1930 Freshman Week. The first of these suggestions was that every Freshman have an opportunity to talk with a member of the faculty in his own college. Since a Freshman registers in one of seven colleges, his chances of being assigned to a faculty member of his own college have been about one in seven. Thus, though the interviews were of much value, many of the faculty and numerous students felt that a better interview would have been possible had students and faculty members from the same colleges been grouped together. This plan had, of course, been thought of by the council, but the desire to keep the program as universal as possible constrained them from adopting it. However, the wisdom of making the change was made clear by the findings of the committee, and students are now sectioned by colleges. Under the new plan the faculty leaders are able to do their part more effectively, since engineers are no longer talking to students in the liberal-arts college; agriculturists to students planning business careers; or specialists in optics, veterinary medicine, accounting, or nursing to students in education.

Moreover, the interviews were found to be so important that their length will be increased and their place on the program emphasized. The committee has proposed that two faculty leaders instead of one be assigned to each group of thirty students and that each be responsible for interviewing but fifteen students. This proposed change will make it possible for the faculty leaders to give more attention to individual students. As faculty members are now interviewing students having problems akin to their interests and expert knowledge, it is believed that the interviewing will be very considerably improved.

The report of the evaluation committee included half a dozen minor suggestions. All were put into the administrative hopper, and the reorganized program in 1930 included the following events:

ADMINISTRATIVE EVENTS

1. Physical examinations for both men and women.
2. Measurement of men for military uniforms.
3. Registration of women with dean of women.
4. Intelligence test.
5. Chemistry-placement test.
6. English-placement test.
7. Musical tryouts.

ORIENTATIONAL EVENTS

1. Faculty interview.
2. Assembly: address by the president.
3. Illustrated talk on the history of the University (new in 1930).
4. Tour of the campus.
5. Tour of the library.
6. Talk on extra-curriculum activities—given to several groups by a few especially well-informed Seniors rather than by the larger number of student leaders whose effectiveness had proved uneven in other years.
7. Talk by the senior dean of each college on the functions of his college (new in 1930).
8. Talk by the junior dean of each college on student adjustment (new in 1930).
9. Special and recreational events: a mixer given by the Young Men's Christian Association and by the Young Women's Christian Association, a tea given by the Young Women's Christian Association, church receptions, intramural recreational athletics, a visit to the stadium to see the football team in practice, an evening given over to a student night managed by the student senate.
10. A conference for parents, at which the Freshman program was described in order that parents might be informed of the University program.

This review of Freshman Week at Ohio State University makes it clear that both the faculty and administrative officers of the University are sensitive to the problems of orienting students to their college careers. Freshman Week has become a permanent part of the program at Ohio State University, and it contributes its large share to establishing Freshmen in their college work and life.

INADEQUACY OF TRAINING OF SECONDARY-SCHOOL TEACHERS AND PRINCIPALS

ROBERT S. GILCHRIST

Maplewood Junior High School, Maplewood, Missouri

The study described in this article was made in an attempt to answer the questions: (1) In what items commonly included in the curriculum for the training of secondary-school teachers do the teachers feel that they are inadequately trained? (2) In what divisions of the curriculum do graduates of colleges of liberal arts, graduates of teachers' colleges, and principals feel that they are the most inadequately trained?

A list of seventy-seven items included in the curriculum for the preparation of secondary-school teachers¹ was sent to principals and teachers in forty secondary schools with the request, "Check those items in which you feel you have had inadequate training." Two hundred and thirty-three responded to the request, 26 principals and 207 teachers. One hundred and thirty-five of the teachers were graduates of colleges of liberal arts, forty-one were graduates of teachers' colleges, and thirty-one did not designate the type of institution from which they had received their degrees.

INADEQUACY OF TRAINING IN ITEMS IN THE CURRICULUM FOR THE PREPARATION OF SECONDARY-SCHOOL TEACHERS

Table I shows the judgments of the 233 teachers and principals as to the items in the division of the curriculum dealing with the principles and organization of secondary education in which they feel they have had inadequate training. The two items ranking highest were checked by more than one-third of the entire group. The three items ranking lowest—"Historical development of the American secondary school," "European secondary schools," and "Size and

¹ The technique followed in determining the list of items is described in detail in Robert S. Gilchrist, "The Educational Preparation of Secondary-School Teachers," *School Review*, XXXVIII (May, 1930), 350-53.

distribution of secondary schools"—were checked by less than 15 per cent of those replying.

Table II reports on items included in the division of the curriculum dealing with methods of teaching in the high school in which the 233 teachers and principals feel they have had inadequate training. "Teaching pupils how to study" and "Supervising study of pupils" were checked by 109 and 97 persons, respectively, and rank first and

TABLE I
FIFTEEN ITEMS IN THE DIVISION OF THE CURRICULUM DEALING WITH PRINCIPLES AND ORGANIZATION OF SECONDARY EDUCATION RANKED ACCORDING TO THE JUDGMENTS OF 207 TEACHERS AND 26 PRINCIPALS AS TO THE INADEQUACY OF THEIR TRAINING

Item	Number of Times Item Was Checked	Rank
Extra-curriculum activities.....	98	1
Educational and vocational guidance.....	94	2
Curriculum and course of study.....	74	3
Vocational training.....	69	4.5
Problems of faculty organization and co-operation.....	69	4.5
School plant and costs.....	56	6
Characteristics of pupils in secondary schools.....	54	7
Selective influences that determine the secondary-school enrolment.....	42	8
Relation of secondary school to elementary school and to higher institutions.....	40	9
High schools of special types (commercial, manual-training, technical, etc.).....	37	10.5
Relation of secondary school to the community.....	37	10.5
Problems of rural, village, and consolidated schools.....	36	12
Historical development of the American secondary school.....	28	13
European secondary schools.....	26	14
Size and distribution of secondary schools.....	25	15

second among the items in methods of teaching in the high school. "Use of the question," the item ranking lowest in the division of methods of teaching in the high school, has a rank of 70 when all the items in all divisions are considered.

Table III gives the number of secondary-school principals and teachers who checked each of the items in the division of the curriculum dealing with the philosophy of education. "Moral education," the only item checked by more than one-fifth of those examining the list, was checked by 33 per cent of the 233 principals and teachers.

In Table IV data concerning the inadequacy of training in the

division of educational psychology are given. No item was checked by as many as one-third of the 233 teachers and principals. Two

TABLE II

FOURTEEN ITEMS IN THE DIVISION OF THE CURRICULUM DEALING WITH METHODS OF TEACHING IN THE HIGH SCHOOL RANKED ACCORDING TO THE JUDGMENTS OF 207 TEACHERS AND 26 PRINCIPALS AS TO THE INADEQUACY OF THEIR TRAINING

Item	Number of Times Item Was Checked	Rank
Teaching pupils how to study.....	109	1
Supervising study of pupils.....	97	2
Socialized class procedure.....	76	3
Visual instruction.....	67	4
Specific methods for various subjects.....	61	5.5
The problem and project.....	61	5.5
Experimental procedure.....	60	7
Motivation.....	55	8
Discipline.....	49	9
The assignment.....	45	10
Lesson types.....	39	11.5
The lesson plan.....	39	11.5
The review.....	32	13
Use of the question.....	29	14

TABLE III

FIVE ITEMS IN THE DIVISION OF THE CURRICULUM DEALING WITH THE PHILOSOPHY OF EDUCATION RANKED ACCORDING TO THE JUDGMENTS OF 207 TEACHERS AND 26 PRINCIPALS AS TO THE INADEQUACY OF THEIR TRAINING

Item	Number of Times Item Was Checked	Rank
Moral education.....	77	1
Nature of society (education and social progress, democracy and education).....	46	2
Nature of the individual (what constitutes happiness).....	45	3
Foundations of method (thought processes, nature of subject matter, and interest and coercion).....	40	4
Meanings of education (aim, functions, purposes, and values).....	32	5

items in this division—"Individual differences" and "Principles of economy in learning"—were indicated by more than 25 per cent of those checking the list of items. The three items ranking lowest in this division—"Conscious states and processes," "Instincts," and

"Sense organs (receiving mechanisms)"—are also ranked lowest when the seventy-seven items in all divisions are considered.

TABLE IV

FIFTEEN ITEMS IN THE DIVISION OF THE CURRICULUM DEALING WITH EDUCATIONAL PSYCHOLOGY RANKED ACCORDING TO THE JUDGMENTS OF 207 TEACHERS AND 26 PRINCIPALS AS TO THE INADEQUACY OF THEIR TRAINING

Item	Number of Times Item Was Checked	Rank
Individual differences.....	66	1
Principles of economy in learning.....	59	2
Characteristics of learning in complex situations.....	37	3.5
Laws of habit formation.....	37	3.5
Acquisition of percepts and ideas.....	34	5
Muscles and glands (reacting mechanisms).....	33	6
Laws of learning.....	32	7.5
Reasoning and problem-solving.....	32	7.5
Transfer of training.....	31	9.5
Emotions.....	31	9.5
Influence of continuous work, external conditions, and drugs on efficiency in learning.....	30	11
Nervous system (connecting mechanisms).....	25	12
Conscious states and processes.....	21	13
Instincts.....	15	14
Sense organs (receiving mechanisms).....	12	15

TABLE V

EIGHT ITEMS IN THE DIVISION OF THE CURRICULUM DEALING WITH THE PSYCHOLOGY OF THE SECONDARY SCHOOL RANKED ACCORDING TO THE JUDGMENTS OF 207 TEACHERS AND 26 PRINCIPALS AS TO THE INADEQUACY OF THEIR TRAINING

Item	Number of Times Item Was Checked	Rank
Intellectual maturity of secondary-school pupils.....	61	1
Social maturity of secondary-school pupils.....	54	2.5
Psychology and supervision of learning.....	54	2.5
Maturity in behavior and attitudes of secondary-school pupils.....	53	4
Psychology of administration.....	47	5.5
Psychology of the teaching process.....	47	5.5
Psychology of various subjects.....	44	7
Physical maturity of secondary-school pupils.....	34	8

Table V shows that "Intellectual maturity of secondary-school pupils" is the item in the division of the curriculum dealing with the psychology of the secondary school in which the largest number of the teachers and principals feel that they are inadequately trained.

Table V also shows the number of times the other seven items classified under psychology of the secondary school were checked.

Table VI reports the facts for the division of tests and measurements. The frequency with which the items in this division were checked is found to be relatively high when compared with the items in the other five divisions. Ten of the twenty items were checked by more than one-fourth of the 233 teachers and principals. The item

TABLE VI

TWENTY ITEMS IN THE DIVISION OF THE CURRICULUM DEALING WITH TESTS AND MEASUREMENTS RANKED ACCORDING TO THE JUDGMENTS OF 207 TEACHERS AND 26 PRINCIPALS AS TO THE INADEQUACY OF THEIR TRAINING

Item	Number of Times Item Was Checked	Rank
Methods of improving written examinations.....	92	1
Use of the results of tests.....	90	2
Use of tests in guidance.....	81	3
Criteria for choice of tests.....	79	4
Measurement of conduct.....	76	5
Intelligence tests for use in secondary schools.....	75	6
Grouping according to ability.....	70	7
Marks and marking systems.....	68	8
Derived scores (mental age, intelligence quotient, and achievement ratio).....	67	9
Prognostic tests.....	66	10
Procedures in determining reliability of tests.....	57	11
Standard tests for various subjects.....	56	12.5
Prediction of success in college.....	56	12.5
List of publishers who print tests.....	55	14.5
Prediction of success in high school.....	55	14.5
Classification and promotion.....	53	16.5
Norms and standards.....	53	16.5
Statistical computations.....	51	18
Tests of clerical and mechanical ability.....	47	19
Use of informal tests.....	46	20

ranking lowest—"Use of informal tests"—has a rank of 45.5 among the seventy-seven items in all the divisions. "Methods of improving written examinations," which was checked by 92 of the 233 teachers and principals, is the item ranking highest in this division of the curriculum.

INADEQUACY OF TRAINING IN THE SIX DIVISIONS OF
THE CURRICULUM FOR THE PREPARATION
OF SECONDARY-SCHOOL TEACHERS

In Table VII the six divisions of the curriculum for the preparation of secondary-school teachers are ranked according to the judg-

ments of 135 graduates of colleges of liberal arts, 41 graduates of teachers' colleges, and 26 principals as to the inadequacy of the training provided. Each item was ranked in the list of seventy-seven items according to the number of times it was checked, and the average of the ranks of the items in each division was then computed.

The fifteen items in the division of principles and organization of secondary education were given an average rank of 42.6 by the 135 graduates of the colleges of liberal arts, 30.5 by the 41 graduates of teachers' colleges, and 43.7 by the 26 principals. The graduates of

TABLE VII

SIX DIVISIONS OF THE CURRICULUM FOR THE PREPARATION OF SECONDARY-SCHOOL TEACHERS RANKED ACCORDING TO THE JUDGMENTS OF 135 GRADUATES OF COLLEGES OF LIBERAL ARTS, 41 GRADUATES OF TEACHERS' COLLEGES, AND 26 PRINCIPALS AS TO THE INADEQUACY OF THEIR TRAINING

DIVISION	135 GRADUATES OF COLLEGES OF LIBERAL ARTS		41 GRADUATES OF TEACHERS' COLLEGES		26 PRINCIPALS	
	Relative Rank	Average Rank in List of 77 Items	Relative Rank	Average Rank in List of 77 Items	Relative Rank	Average Rank in List of 77 Items
Principles and organization of secondary education...	4	42.6	1	30.5	6	43.7
Methods of teaching in the high school.....	2	36.2	2	33.5	3	37.5
Philosophy of education...	5	44.9	4	39.6	4	39.0
Educational psychology...	6	62.8	6	55.4	5	43.2
Psychology of the secondary school.....	3	42.3	5	45.1	1	31.3
Tests and measurements.....	1	17.6	3	34.4	2	36.4

teachers' colleges feel their inadequacy of training in this field to be greater than in any of the other divisions, while the other two groups placed other divisions higher in rank. The greatest variations in the ranks given to the divisions by the three groups occur in principles and organization of secondary education and in psychology of the secondary school. The fact that the principals ranked psychology of the secondary school first indicates that they feel the most inadequately trained in this division. The graduates of teachers' colleges ranked the same division fifth.

The average ranks assigned by the graduates of teachers' colleges and by the principals show no marked inadequacy of training in one division as compared with another. On the other hand, the ranks as-

signed by the graduates of colleges of liberal arts indicate clearly that they feel a decided inadequacy of training in tests and measurements. As there are twenty items listed in this division, the average rank could have been no less than 10.5. The rank of 62.8 given to educational psychology indicates that the members of this group feel well trained in this field since the average rank could have been no more than 70.0. The item, tests and measurements, is within 7.1 units of the lowest average rank which might have been given, while educational psychology is within 7.2 units of the highest average rank possible.

SUMMARY

The results of the study may be summarized as follows:

1. The items in which the 233 secondary-school teachers and principals feel most inadequately trained are "Teaching pupils how to study," "Extra-curriculum activities," "Supervising study of pupils," "Educational and vocational guidance," "Methods of improving written examinations," and "Use of the results of tests."
2. The graduates of colleges of liberal arts feel their inadequacy of training most in the division of tests and measurements. They ranked educational psychology as the division in which they feel least inadequately trained.
3. The graduates of teachers' colleges feel that they are most inadequately trained in the division of principles and organization of secondary education. Methods of teaching in the high school and tests and measurements were ranked second and third, respectively, by this group.
4. Psychology of the secondary school is the division in which the principals feel most inadequately trained. Tests and measurements and methods of teaching in the high school were ranked second and third by the principals.

Educational Writings

REVIEWS AND BOOK NOTES

The measurement of mechanical ability.—Two movements within education have stimulated an interest in the measurement of mechanical ability. The first of these came as a part of the program of the measurement of general intelligence. When tests for measuring mentality suggested that human conduct depends on specific mental abilities rather than on one general ability, all the possible attributes of mentality were studied separately, and specific tests for their measurement were either devised or suggested. The development of tests for the measurement of specific abilities gave rise both to an interest in the diagnosis of mechanical ability and to the study of its measurement. The second movement within education that stimulated interest in the testing of mechanical ability came with the introduction of industrial training as a part of public education. An effective program of industrial training depends on the ability to predict an individual's probable success in the special field in which he is to be given training. Without a measure of mechanical ability the program of industrial education is needlessly expensive; or, what is worse, it merely offers a way out for the school administrator who is confronted with the problem of providing a program for pupils who have given evidence that they are unfit for academic work.

A recent report¹ by a committee of research investigators discloses the most nearly complete knowledge which has yet been brought to light by use of mechanical-ability tests. The origin of the study which is reported dates back to the conception of a more inclusive program by the Committee on Scientific Problems of Human Migration, appointed in October, 1922, by the National Research Council. While the immediate purpose of the study dealt with a program for making more effective the orientation of the foreigner in industrial life, the results of the investigation are far-reaching in education, especially in the fields of vocational education and vocational guidance.

First, a survey of all tests of mechanical ability was made. After careful consideration the committee selected a battery of tests which was given to a selected group of pupils in the Minneapolis public-school system, where the in-

¹ Donald G. Paterson, Richard M. Elliott, and Others, *Minnesota Mechanical Ability Tests*. Minneapolis, Minnesota: University of Minnesota Press, 1930. Pp. xxii + 586.
\$5.00.

vestigation was carried forward. The results of the tests were analyzed, and their effectiveness as measures of mechanical ability was studied by comparing the test scores with the actual shop performance. Upon this basis a final group of tests was devised. These tests were then used in the experiment proper, the results of which form the basis of the report. For the purpose of measuring the effectiveness of these tests, the test scores were compared with the finished products made by the pupils in the introductory shop courses, with the results of final-operation tests given in these courses, and with the results of objective information tests. Facts concerning the general intelligence and the social status of the pupils were gathered and used for purposes of comparison.

Any limited review of the findings of this significant contribution could not do justice to the study. To state that the investigation discloses that specific factors, rather than a single general factor, characterize mechanical ability; that the measures of mechanical ability are not to any considerable extent measures of intelligence; and that no relation exists between measured environmental factors and mechanical ability leaves unstated the full significance of a study that is rich in revelations. It is sufficient to state here that, as a result of this study, school administrators and teachers, especially teachers of industrial subjects, have been offered an intelligent basis for dealing with problems both of industrial education and of vocational guidance. This investigation should stimulate others to go farther into this challenging field of research. The report is especially helpful to workers in the field because there are included in the report a copy of all the tests which were used and a complete explanation of the formulas which were employed for the mathematical treatment of the data compiled.

ROBERT C. WOELLNER

Investigation of the confidential relationships of mothers and their adolescent daughters.—A monograph of recent publication¹ reports an initial study of the possibility of setting up a technique which will measure the degree to which the adolescent girl confides her problems to her parents and the degree to which her problems are sympathetically solved with her parents' co-operation.

Eugenie Andruss Leonard believes that the problem of guiding the adolescent girl has three basic considerations: (1) knowledge of the individual growth processes, (2) knowledge of assisting social resources, and (3) knowledge of adolescent problems from the adolescent's point of view. Her study is primarily concerned with the last phase, which she believes of great importance in parent-adolescent relationships. This conviction is based on the following suppositions.

1. Parents owe their children a form of continuation-education, which is made up, in effect, of the parents' conclusions and knowledge of life. They owe this because of the prolonged infancy of their children and the more complex form of living.

¹ Eugenie Andruss Leonard, *Concerning Our Girls and What They Tell Us: A Study of Some Phases of the Confidential Relationship of Mothers and Adolescent Daughters*. Teachers College Contributions to Education, No. 430. New York: Teachers College, Columbia University, 1930. Pp. vi+192. \$2.00.

2. The parents' knowledge of life will be of little or no value to the adolescent unless it is communicated through a joint learning process.

3. This learning process is effective in direct ratio to the amount of confidence, or sympathetic understanding, that exists between the parent and child.

A very careful and painstaking study of the questionnaire method was made by the author in order that an objective approach might be devised which "might act as a key to the parent-child relationship, as a means by which to diagnose conflicts, inadequacies, and controlling influences" (p. 3). After considerable experimentation and with the aid and advice of many qualified persons, she constructed seven sets of questionnaires of varying types (scale-how-often, scale-how-much, question-yes-no, judgment-yes-no, etc.) based on 539 actual items of life-experiences of adolescents which bear on the mother-daughter relationship. These questionnaires were answered by four groups of 450 adolescents in the Wadleigh High School, New York City.

Among the conclusions drawn from the 303 replies which were complete enough to be used are data as to the factors that foster a wholesome confidential relationship between parent and child and those that hinder it. In addition, many implications for a technique or method of determining these factors are stated. After making a detailed study of selected replies, the author concludes that, with certain changes and improvements in the questionnaire, the method used should come to be of definite value in diagnosis.

The author disarms all critics by criticizing her own techniques, by stating their limitations and drawbacks as well as their advantages. Her study throughout is moderate, exact, educationally scientific, and dispassionate. It is a distinct contribution in a field where much waits to be done in a similar spirit of scientific inquiry—the field of parent education which is yet naïve in its content and method when the adolescent's personality and character are the considerations.

KATHRYN McHALE

AMERICAN ASSOCIATION OF UNIVERSITY WOMEN
WASHINGTON, D.C.

The prognostic value of the Thorndike examination.—The predicting of scholarship in college has in recent years become a problem of real importance because of its relation to the larger problems of selective admission, dismissal, probation, guidance, motivation, etc. The search for a reliable means of predicting success in college has resulted in various experiments which consider the relation between scholarship and such factors as the results of objective tests, high-school marks, and personality. While any attempt to predict scholarship should probably consider each of these factors, many experiments are confined to the use of objective tests alone. A recent monograph¹ sets forth the results of an experi-

¹ David Welty Lefever, *The Prognostic Values of Certain Groupings of the Test Elements of the Thorndike Intelligence Examination for High School Graduates*. University of Southern California Studies, Education Series, Number 9. Los Angeles, California: University of Southern California Press, 1930. Pp. xii+116.

ment made with the Thorndike Intelligence Examination for High School Graduates. The widespread use of this test among colleges gives importance to the results of such a study.

The book is distinct from other investigations dealing with the validity of the Thorndike examination because it evaluates the predictive merit of certain groupings of the test sections rather than the predictive value of the test as a whole. Furthermore, the study uses as a criterion of scholarship not only an average of semester marks but also the marks achieved in individual courses. The subjects considered in the study were 884 Freshmen of the University of Southern California to whom the test was administered and for whom subsequent data as to scholarship were secured. The total Thorndike score was the best single measure for predicting general success as measured by marks in scholarship achieved during the first semester of the Freshman year. (The correlation between total test scores and scholarship was, however, only 0.29.) For some of the individual courses certain sections of the examination proved to have greater predictive value than the total test scores. Use of the regression-equation technique showed that Linguistic Ability and Mathematical Ability were two outstanding sections of the examination. These sections also proved to be of value in differentiating course groups. The last two sections of the test, Ability To Follow Printed Directions and General Information, proved to be of little value. Some information is given concerning the reliability of the Thorndike examination, but the information is of little value since it is based on a small number of cases so selected as to cover a very limited range.

The value of the book lies in the fact that it illustrates the statistical techniques necessary for a thorough evaluation of an objective test and in the fact that it throws additional light on the validity of the Thorndike examination. The specialist interested in these aspects of the problem of prediction will welcome the publication.

ALBERT GRANT

PSYCHOLOGICAL LABORATORY
PUBLIC SCHOOLS, CINCINNATI, OHIO

A study of a local high-school population.—A monograph recently published¹ purports to make an intensive study of the "social, economic, and educational characteristics of a single secondary-school population, that of Cheltenham Township Public School System" (p. 11). Its techniques follow the plan of most previously published studies of the character of the secondary-school population, but this book attempts a more general picture than most of its predecessors in that a greater variety of information is obtained about the individuals studied.

The report of the study is in three parts. Part I defines the problem and

¹ Herman M. Wessel, *The Secondary School Population in Some of Its Social and Economic Relationships*. Philadelphia: University of Pennsylvania, 1930. Pp. 154.

describes the techniques used. The data were collected through a pupil questionnaire and a home questionnaire. In addition, facts with regard to intelligence, health, grades, and success in school subjects were obtained from the office records of the school system. The pupil questionnaire was filled out by 1,033 pupils in Grades VI-XII, who were twelve years of age or over, and the home questionnaire was returned by 815 of these pupils. Part II presents tabulations of the data collected concerning school characteristics, home background, activities outside of school, and plans for the future. Part III treats certain relationships, principally relations between school status—as represented by grade, by curriculum, and by subject failures—and other factors, and relations between plans for the future and such data as intelligence, ethnic origins, fathers' occupations, and subject failures.

The study presents no findings that are particularly different from those of similar studies already published. It does present a body of data concerning a single school population which is perhaps more comprehensive than that presented by most similar studies. The local nature of the study makes many of the conclusions unsuited to wide application. Moreover, in several instances the number of cases is too small to warrant general conclusions. In spite of this obvious deficiency, the author in a number of places points out as significant, differences between percentages which are based on six or three cases or even on one case, for example, on pages 80, 85, and 93. In one of these instances (p. 80) he quotes from Counts's *The Selective Character of American Secondary Education* to the effect that the percentage of twelfth-grade enrolment representing the common-labor group is .3 while, as a matter of fact, reference to the quoted authority shows that this percentage is really a misquotation, the correct figure being .6.

Two other criticisms should be mentioned. The author states that "the evidence indicates that of the children in German, Italian, and negro groups, the largest percentages named occupational choices in one or another of the trades" (p. 124). Reference to Table LVIII on page 119 shows that in the case of the German children, 21.9 per cent expressed preferences for the professions and 16.5 per cent for clerical work as compared with 9.9 per cent for all trades combined; in the Italian group 15.4 per cent expressed preferences for the professions as compared with 5.1 per cent for building trades and 10.3 per cent for miscellaneous trades, or a total of 15.4 per cent. In other words, in two cases out of three the author's conclusions are not borne out by his data!

A similar but less striking discrepancy exists between a statement on page 97 regarding subject failures of children employed after school and the facts as given in Table XLII on page 96. In this case the statement is true if absolute numbers are considered but not if they are taken relatively. One is led to wonder whether similar errors could not be found in other portions of the report.

The second criticism is one of technique. The reviewer believes that in a study of this kind, in which differences based on small numbers of cases are

presented in many instances, nothing would be lost and much might be added to the validity of the findings by the application, if only in the most critical issues, of certain well-known criteria for the evaluation of the significance of obtained differences.

The study covers a great deal of ground in that it suggests a considerable variety of types of information that can be collected concerning a high-school population. It is well written and is an example of the type of study which should be made more often and more thoroughly. It is certainly commendable as an example of what a local school system can do in obtaining a picture of its school population. It is encouraging to know that there are school administrators who are willing to take the time and trouble for such studies.

VICTOR H. NOLL

First aid for the inexperienced teacher of mathematics.—The young and inexperienced teacher of mathematics usually begins to teach without adequate preparation. He has studied some mathematics in college, yet he is ignorant of many important points in elementary mathematics which could not be given to him as pupil but which he ought to know—and know thoroughly—as teacher. Before he begins to teach, he ought to have read the standard works on the teaching and the history of mathematics and, through long hours of serious study, have mastered the fundamental concepts of algebra and geometry and of the philosophy and psychology of teaching these subjects in the secondary school. He ought, in other words, to have had a thorough course of training for the particular work he is about to undertake. There is no short cut. The nearest approach to a short cut is a new book¹ for teachers of mathematics in the Macmillan series of mathematical textbooks edited by Professor Hedrick.

This handbook, well suited to the needs of the harassed beginner, is an epitome of the standard authors, setting forth in pithy phrase and with interesting and pertinent illustration the matters on which the beginner needs most to be informed. The book is divided into two parts. The first part gives in brief compass the fundamental concepts of arithmetic, algebra, and geometry and the history of their development. In this the authors show their agreement with the recent pronouncements of heads of teacher-training institutions to the effect that method must not be emphasized at the expense of thorough understanding of subject matter. The second part considers general questions of methods and aims in the teaching of mathematics in secondary schools, including the junior high school, and proceeds then to detailed treatment of critical topics in algebra, geometry, and trigonometry.

Both in algebra and in geometry the authors stress the importance of undefined terms, definitions, and assumptions. That algebra has a logical structure akin to that of geometry is something that generally escapes pupils in high

¹ Jasper O. Hassler and Rolland R. Smith, *The Teaching of Secondary Mathematics*. New York: Macmillan Co., 1930. Pp. xii+406. \$2.50.

school, but it ought not to escape their teachers. They, at least, ought to appreciate the fact that the operations with negative numbers and with negative and fractional exponents—to take but two examples—are definitions devised with an eye to convenient generalization and to extending the field of application of the science. This fact the authors make very clear. Equally clear is their plea for a longer list of assumptions in the earlier stages of demonstrative geometry. Their treatments of the general methods of synthesis and analysis, of deduction and induction, of the different methods of solving sets of simultaneous equations, of the indirect method in geometry, of the representation and visualization of solids by means of drawings in perspective, and of the functions of the general angle in trigonometry are very happy and fair samples of the numerous helpful hints to be found throughout the book. The only important exception is the treatment of locus, which is so condensed as to be slightly inaccurate; it would probably mislead the inexperienced reader.

The beginning teacher needs only the caution that this book, though an excellent summary, cannot supplant a thorough course of training in the teaching of mathematics or give the background that can be gained only by painstaking study of the sources from which the book was drawn and to which the authors give frequent reference and acknowledgment.

RALPH BEATLEY

HARVARD UNIVERSITY

Graphic forms in current reading matter.—A recent study¹ of the activity-analysis type indicates the need of the general reader for an understanding of such graphic forms as maps, mechanical drawings, graphs, architectural drawings, and electric-circuit diagrams. The author employed the usual method of analyzing a sampling of magazines and newspapers to discover the graphic forms contained therein. Automobile instruction books were included because they are in common use and contain many graphic representations.

The bulk of the volume is devoted to descriptions of the techniques employed in selecting the literature for analysis, in analyzing the contents, and in computing indices of frequency and coefficients of distribution, and to descriptions of the methods of classification and analysis of data. Two large tables, included as inserts in the volume, present detailed tabulations of the significant data.

The author does not assume that this study should determine conclusively what graphic forms ought to be included in the curriculum. Such a determination waits on the completion of certain supplementary studies which he suggests. The negative implication is stronger. The teaching of graphic forms which do not show a high frequency of occurrence in the study probably should be presented only to specialists.

The work is a careful and scholarly production. Adequate samplings were

¹ Walter H. Magill, *The Determination of the Graphic Forms and the Frequencies of the Forms Employed in the Current Reading Matter of the Non-Specialist*. Philadelphia: University of Pennsylvania, 1930. Pp. 62.

obtained, and the data were handled effectively. While no radically new techniques were developed or used, the study makes a positive contribution to the literature of curriculum research.

OLIVER L. TROXEL

COLORADO STATE TEACHERS COLLEGE

A manual of high-school dramatics.—An attractive volume of modest length,¹ addressed to high-school classes interested in plays and play production, is the outgrowth of the author's experience of ten years in teaching the subject in South High School, Minneapolis, Minnesota. Part One, entitled "Reading, Seeing, and Acting a Play," consists of sixteen chapters averaging nine pages each. In these chapters the author presents the educative value of dramatics, the elements of dramatic writing, the varieties of drama, the nature of pantomime, the essentials of character-drawing, the physical and mental aspects of acting, the elements of stagecraft, and similar themes. Appended to each chapter is a list of questions and problems, some of which require elementary research and many of which involve constructive activities. The suggestions there made ought to be of large value, especially for teachers who for the first time are conducting classes in drama. Part One closes with an excellent bibliography addressed to teacher and pupil.

Part Two presents six one-act plays: "A Night at an Inn," by Lord Dunsany; "The Weather Breeder," by Merrill Denison; "The Proposal," by Anton Chekov; "The Twilight Saint," by Stark Young; "My Lady's Rose," by Edward Knoblock; and "The Knave of Hearts," by Louise Saunders. The plays furnish materials for many of the problems at the end of various chapters and, in addition, are well adapted for class discussion and presentation.

The many admirable features are somewhat offset by the excessively colloquial style in which the book is written. To be sure, the author commendably attempted to be "purposely informal" (p. xiv) as a part of her program for leading high-school pupils to be simple and natural; but her deliberate informality seems to have been carried too far in scores of cheap expressions like "an audience that feels that the best way to get its money's worth is to cackle" (p. 118). Textbooks for all classes, and for English classes especially, ought to be written in good English.

R. L. LYMAN

A student's guide in the study of foreign language.—A volume addressed to the learner and concerned primarily with study procedures is the contribution to the solution of foreign-language problems offered by a book² produced through the collaboration of a trained educationist and an experienced classroom teacher.

¹ Helen Randle Fish, *Drama and Dramatics: A Handbook for the High-School Student*. New York: Macmillan Co., 1930. Pp. xvi+292. \$1.40.

² Claude C. Crawford and Edna Mable Leitzell, *Learning a New Language*. Los Angeles, California: C. C. Crawford (University of Southern California), 1930. Pp. xii+242. \$2.00.

A glance at the Table of Contents shows that attention has been given to the aims and purposes of foreign-language study, to the psychology of the learning process, to the various skills to be mastered, and to the factors entering into their acquisition. As the modern languages are clearly in the foreground throughout most of the book, a separate chapter points out to the student of Latin the special application of the discussion to his particular needs. The material is systematically organized into thirteen chapters and is provided with paragraph headings, numerous summaries, end-chapter questions, and selected references. The language used is non-technical and should be readily understood by the student-reader.

The aim of the authors, as stated in the Preface, is to orient the beginner by presenting a general view of all phases of foreign-language learning rather than to advocate any particular objective or method, the underlying principle being that forms of procedure derive their justification from the results desired. Would it not have been wise to remind the student also that his choice of aims should be governed by the time at his disposal for the study of a foreign language?

The treatment is, on the whole, sane, conservative, and cautious and, the authors say, is confined to methods and suggestions which have grown out of the experience of many students and teachers of foreign languages. Especially good suggestions are to be found in the chapters entitled "Listening," "Reading," "Speaking," and "Writing."

The least satisfactory chapter is the second chapter, entitled "Thinking in a Foreign Language." One is surprised to find here a reiteration of the fallacy that the use of an object in learning the foreign word "makes it possible to keep English out of the mind entirely during the learning process" (p. 18). The authors have failed to utilize the more recent discussions of this problem of language-learning by such psychologists as Judd (*Psychology of Secondary Education*, chap. xii) and MacPhee (*Modern Language Instruction in Canada*, I, 53-56. Publications of the American and Canadian Committees on Modern Languages, Volume Six). Even Palmer in the volume referred to on page 36 of the book under review holds that "the most fervent partisan of the direct method translates, whatever his wishes to the contrary may be" (*The Scientific Study and Teaching of Languages*, p. 99).

The emphasis throughout the book is on the familiar tenets and practices of the direct method, the chief aim of which is to develop speaking ability in a foreign language. The possibilities of contributing to the student's knowledge of English which are inherent in the grammar-translation method are also pointed out; but the principles of the direct-reading method, which the Modern Foreign Language Study has recommended as best suited to present conditions in the schools, have not been adequately interpreted to the student. The brief reference to silent reading as another "type of thinking in the foreign language" (p. 28) and the suggestion on page 149 that reading aloud belongs to the early stages and silent reading to the advanced stages of language-study do not reflect accurately the point of view of the direct-reading method. Most foreign-

language students today do not have time nor occasion to acquire more than silent-reading ability. No guidance for attaining this ability in a minimum of time is given, nor is there any hint of the desirability of such an acquisition as a prerequisite for the development of other language skills.

HELEN M. EDDY

UNIVERSITY OF IOWA

Physical-education facilities in the high schools of Alabama.—Two objectives are proposed by the author of a recent study:¹ (1) to set up standards for the physical-education program of accredited high schools of Alabama and (2) to set up standards for the facilities to be used in administering and supervising the program.

The author first reviews the actual situation in the state with respect to teachers, types of schools, programs in health and physical education, and facilities for the administration and supervision of the program. He then proceeds, by a survey of the literature of the field, to set up standards for facilities for carrying out the existing program of physical education in the state. Special emphasis is given to determining criteria for satisfactory outdoor conditions for carrying out the program. Data on actual weather conditions were collected daily during one winter month in the counties of Birmingham and Jefferson by fifty teachers of physical education. These data are supplemented by a five-year report on the weather conditions for the whole state, which was obtained through the co-operation of the United States Weather Bureau. Much emphasis is also given to the determination of the best place and surface for the activities of the program. Data were obtained by the use of a questionnaire in which three hundred teachers in the state were asked to rank places and surfaces for the administration of the program.

The study places most emphasis on the questions of weather conditions for the outdoor program and on the best place and surface for practice in the activities of the program. The treatment of these topics is rather meager, and the few conclusions reached impress the reader as rather obvious. From the standpoint of research, too, the conclusions in some instances are arrived at from a somewhat limited sampling, for example, in the cases of data taken from fifty and from three hundred teachers. The ranking of places and surfaces for practice is attained by a mere subjective consensus of teachers. A greater amount of objective evidence is needed to make the reliability of the conclusions convincing.

If the methods of obtaining data and the narrowed scope of the study are accepted by the reader as valid, the chief contribution made by the author lies in the application of his few somewhat obvious conclusions in the formulation of a proposed program for use by the State Department of Education in the ac-

¹ Jackson Roger Sharman, *Physical Education Facilities for the Public Accredited High Schools of Alabama*. Teachers College Contributions to Education, No. 408. New York: Teachers College, Columbia University, 1930. Pp. vi+78. \$1.75.

crediting of high schools, in the supervision of the program in physical education in these schools, and in the building program of the state.

E. E. BRATCHER

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